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THE

Sanitary Inspector.

A MONTHLY JOURNAL,

DEVOTED TO PERSONAL AND PUBLIC HYGIENE

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SANITARY INSPECTOR.

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Salutatory.

We make no apology for this little journal, but give the following brief explanation of the reason for its being. The new law which provides for a local board of health in every town makes it necessary that there be a medium of communication between the State Board and the local boards. A growing interest in sanitary matters among the people generally also makes it desirable that there should be, besides the Annual Report of the Board, and its circulars, other sources of information regarding home and public hygiene, which are easily available. Therefore, the aim will be to make this journal helpful to our local sanitary authorities, and interesting and instructive to the general public. Those who have had their attention turned in this direction are the most likely to appreciate the great worth of healthful conditions and healthful influences. The evolution of the sanitary sense is a somewhat slow process, whether with the individual or with society That fire must be used under certain restrictions and with certain precautions the child learns early; but that other agencies, ever present but not so conspicuously visible, are equally dangerous when unintelligently used, the man often learns in middle age or late in life in the expensive school of actual experience. These ever-present dangers THE SANITARY INSPECTOR will seek to discover, when found will sound the warning signal, and, as far as may be, show how the peril may be avoided. That this little journal may reach as many homes as possible and do the utmost measure of good, the price of subscription is put at a figure which will not nearly pay the cost of publication. We call upon the friends of the movement to aid us by sending in their subscriptions, and by asking their friends to do the same.

It is hoped to make this journal live without cost to the State, and therefore without letting it draw upon the appropriation of the Board. To enable us to do this a few pages of advertisements are inserted. With regard to advertisements, the rule will invariably be followed to admit none relating to inferior or worthless articles Therefore, the public may believe that, in our opinion, the things advertised are worthy of being placed before the people.

Local Boards of Health.

That part of last winter's legislation entitled "An Act to establish Local Boards of Health, and to protect the People of this State from Contagious Diseases" has gone into operation very smoothly and satisfactorily. The municipal officers are to be commended for the promptness generally with which they made the appointments of the local boards, and for the excellent judgment which they, in most cases, brought to bear upon their duties. At the time of going to press, of the 445 towns in the State 416 have been heard from as having a local board of health, and of these 388 have formally reported their organization to the State Board and have received from this office their equipment of blanks, circulars, and other things to instruct them in regard to their work, and to aid them in doing it.

Contagious Diseases.

Almost every day, and averaging more than daily, cases of the infectious diseases are reported to this office, and it is a great satisfaction to add that in almost every case means are promptly taken to guard the public against the danger of infection, To the local board of health of Greenville was presented the first emergency to stir the public mind as only the cry of "small-pox" or "cholera" can. It was a case of small-pox in the person of an Italian laborer, who was sent out ten miles from a gang of men who were at work on the Canadian Pacific R. R. He had recently come from New York, and thinks he took the disease there. The promptness with which he was quarantined and cared for by Dr. Hunt, the Health Officer, and by the Local Board of Health, is a credit to them and illustrates the advantage of having in each and every town an organization whose special duty it is to look after dangers of this kind.

Plumbing Regulations.

In every city and in every village of any considerable size, the matter of house drainage and sewerage should be regulated by municipal by-laws. As it is now in this State, there is no approach to uniformity among architects and plumbers in regard to the planning or execution of house-drainage works; consequently, proprietors and occupiers of houses have no means of knowing certainly whether their plumbing arrangements are safe or unsafe. Last year there came under the observation of the writer, in connection with a case of diphtheria in the house, a plumbing job which in its mechanical

execution appeared to be good, but which in its entire plan made the house a dangerous one to live in. And yet the owner paid for a first-class job and supposed he was getting what he paid for. This matter is of the utmost importance, and as such is recognized by the State Board of Health, which, at its last meeting, chose a committee to prepare a set of plumbing rules as a guide to such towns as deem it necessary to adopt such regulations. The rules for this purpose will appear in the next number of THE SANITARY INSPECTOR.

At the banquet which the Chicago Master Plumbers' Association gave to the visiting members of the National Convention, Commissioner of Health DeWolf, in responding to the toast "The Plumber as a Health Officer," related the following incident to illustrate the relation in which the plumber stands to public hygiene.

"A few years ago I learned that a family on West Adams street was afflicted with diphtheria. I sent our inspector of plumbing to that house begging the permission of the father to inspect the premises. His first child lay dead in the house and he said, 'No! Give my compliments to the doctor and tell him Mr.——was my architect and Mr.——was my plumber. This house was built under my supervision, and I am perfectly satisfied with its condition.' Two days after that, I learned that his second child was dead, and I sent Mr. Genung again to ask permission to examine the house, and, on the evening of the third day, when Mr. Genung reached there, the third child was dead. Mr. Genung went into the basement of the house, and began to remove the floor. The father, coming down, objected to that, but Mr. Genung progressed, and, moving the flooring, he saw at once that the union between the soil-pipe and the house drain had been broken, and that the sewage of the house had saturated the earth and had been drawn into the furnace. The father looked upon the mass of filth, and took the two dead bodies of his children and wrapped them in a blanket, and took them to a neighbor's, and said 'I will never enter that house again; I will abandon it.'"

The same speaker on the same occasion referred to Chicago as being a city "whose site fifty years ago was a quagmire. There is to-day a population of nearly 800,000 souls, and the death-rate has been reduced from 26 per thousand per annum to 18 1-2 per thousand per annum in ten years. There were living on the thirty-first day of December last, more than 4,500 souls in this city of Chicago, that would have died during the year, had the death-rate of ten years ago been maintained."

The Contagious Diseases of Animals.

There seemed to be a fear in some quarters last winter that the very free discussion of the tuberculosis question would work harm to our stock-raising interests. On the contrary the public have got some very useful ideas out of it in regard to the infectious diseases of animals generally and tuberculosis in particular, and the prompt work of our cattle commission has given the assurance at home and abroad that the policy of this State is to stamp out and weed out promptly all such diseases. This is absolutely demanded in the interest of the agricultural classes, and in the interest of the public health. It must be done, also, in the interest of our State as a summer resort. We have had the rare fortune to escape the contagious diseases of animals as no other State has, and our present immunity must be maintained.

The intimate relation which exists between the diseases of our domestic animals and those of the human race should be understood by the general public. It is a matter which affects our material prosperity and public health. It is well known that a few human diseases may inadvertently or accidentally be communicated to animals; but there is more danger to man from the diseases which may come to him from the animals with which he is associated in various ways.

Actinomycosis is a new name for certain contagious tumors affecting the jaws of the bovine race. The pathological character of the disease was first determined by Bollinger. He found that the disease is not rare in old cattle, developing itself in a few weeks, and lasting a month or two or even a year until, through the difficulty of eating because of the diseased jaw or enlarged tongue, emaciation and death closes the scene, if the animal is not slaughtered before. The disease is due to the presence of a rapidly growing microscopic fungus, and may affect hogs and man as well as cattle. In this country the disease was first recognized in American cattle by Dr. Belfield, of Chicago. Up to the present time about seventy-five cases have been recorded as occurring in man.

Another disease, not a newly described one, epidemics of which may possibly sometimes come from the same disease in animals, is scarlet fever. Whether this disease ever occurred in animals has been a mooted question. In this connection some observations and investigations which have lately been carried on in England and Scotland are, to say the least, interesting.

Mr. Power, a sanitary inspector in the service of the Local Government Board, traced an outbreak of scarlatina to the milk coming from a special dairy farm at Hendon. An investigation showed that the cows were affected with a disease which is ushered in with a short initiatory fever, a dry, hacking cough, sometimes quickened breathing, sore throat in severe cases, discharges from the nostrils and eyes, an eruption on the skin around the eyes and on the teats and udder, this eruption being in the form of vesicles or bullæ. At this point Dr. Klein supplemented the investigation with a series of bacteriological experiments. A micrococcus was discovered which was thought likely to be the specific virus of the disease. Cultivations made from this, when inoculated into calves, produced a similar affection, with post-mortem lesions resembling those of scarlatina. The same micro-organism was found in the blood and tissues of the subjects of human scarlatina. The conclusion therefore, was that this Hendon dairy disease is the bovine form of scarlet fever, and that the milk from the cows thus affected was the cause of the scarlatinal outbreak. This conclusion was pretty generally accepted in England as a reasonable one; but now Drs. Jamison and Edington of Edinburgh come with the results of their investigations in regard to the contagium of scarlet fever. They find a different micro-organism, and that inoculations of the cultures of it produce in calves a dry, red rash, followed by desquamation. As they are not without experience in this kind of work and their experiments seem to have been made with much care, we are left in doubt who has discovered the true microbe of scarlet fever, or whether anybody has. We may hope, however, that we are on the eve of a discovery.

Second Annual Report.

The Second Annual Report of the State Board of Health will be ready for distribution in a few days. To any person who is interested enough in the matter to send a postal card requesting the volume, a copy will be sent. The requests should be sent at once that the books may be forwarded by express to the secretaries of the local boards, thus saving postage.

It should be remembered by the local boards of health that the care of the contagious diseases of animals is not within their jurisdiction. They are, however, in a position to be useful occasionally to their towns. Cases of the contagious animal diseases should be re-

ported to the Cattle Commission, F. O. Beals, President, Bangor; W. W. Harris, Secretary, Portland; Dr. Geo. H. Bailey, Veterinarian, Portland.

We congratulate our neighbors across the New Brunswick line in that they have established a Provincial Board of Health. The act providing for the establishment of the board was passed in April and went into operation the first of June. The composition of the board is as follows: Wm. Bayard, M. D., the Hon. James Holly, the Hon. James Steadman, the Hon. Charles Waters, John Z. Currie, M. D., Geo. E. Coulthard, M. D., G. Hayward Coburn, M. D. Wm. Bayard, M. D., St. John, is chairman, and John Z. Currie, M. D., Fredericton, is secretary of the board.

Report of the Hydrophobia Commission.

Pasteur's inoculation for hydrophobia has found many opponents who have directed against it both argument and ridicule. It must be admitted that from the best accounts which we could get of his methods and their results we have had considerable reason for incredulity. It is, however, quite encouraging to have so favorable a report on the process as that which has lately been made by the committee which was appointed by the English Government to make an enquiry into its value. The personnel was a guaranty that the ability to observe accurately and to weigh carefully the evidence for and against the anti-rabic treatment would not be wanting. The committee was composed of Sir Henry Roscoe, Dr Burdon Sanderson, Dr. Lander Brunton, Prof. Victor Horsley, Sir James Paget, Sir Joseph Lister, Dr. Quain, and Dr. Fleming. Pasteur's methods were studied in Paris, his statistics were subjected to a critical examination, and a considerable number of cases were personally investigated, experiments were instituted in England to verify or disprove some of the results, and, after spending about a year in their work, they have unanimously come to a conclusion which is entirely favorable to Pasteur's method.

Dr. Ullmann, assistant of Professor Albert, has carried on Pasteur's treatment at the surgical clinics for some twelve months, during which time 118 persons have been treated. Of these, three persons died from hydrophobia; the others remained healthy. Dr. Ullmann is also carrying out experimental researches on animals, and at the last

meeting of the Vienna Society of Physicians a preliminary note was read by him containing the following conclusions: (1) According to his experiments thus far, the animals do not succumb from rabies in consequence of preventive inoculations; (2) certain animals can be rendered refractory against rabies by preventive inoculations; (3) statistics of preventive inoculations made by him in human beings are also favourable to the value of Pasteur's method.

—*Vienna correspondent of the Lancet.*

Infantile Hygiene.

The newspapers report a very great recent mortality among infants, especially in cities, which is ascribed to the unusually hot weather. It is well known that the infantile death-rate is greatly augmented during the warmer months and directly and indirectly the high temperature may be regarded as the cause of this increase. The heat directly has a depressing effect upon the vital powers, but indirectly it is a cause of increased infant mortality by favoring those fermentative and putrefactive processes which are the principal causes of the infantile diarrhœal diseases. The putrefactive changes in accumulations of filth or in filth-sodden ground give rise to exhalations of gases and micro-organisms which are pathogenic. With the advent of the hotter months there is also a lowering of the water surface in wells and springs; consequently, their drainage influence reaches over a greater area of surface and is more likely to contribute pollution. But undoubtedly by far the more potent factor in the causation of the diarrhœal diseases of infants is the fermentative changes in their food supply, particularly milk. The majority of the subjects of these diseases are artificially fed, wholly or in part, and to the want of cleanliness and freshness of the milk supply, we must attribute the greater number of the deaths.

To prevent the diarrhœal diseases in artificially fed children, the prime indication is to guard against introducing into the child's stomach any of the infective, fermentative matter which may, after its ingestion, set up a fermentation process in the digestive organs. Therefore, the milk must be freshly drawn or cooled artificially to insure against any injurious changes in it. All vessels in which it is preserved or fed must be kept scrupulously clean. On account of the impossibility of thoroughly cleansing it, the nursing bottle with a rubber tube between the nipple and the bottle should never be used. One of our medical correspondents aptly calls this form of nursing bottle "the modern Herod."

The following extended quotation is made from an excellent circular recently issued by the Ohio State Board of Health on "The Care and Management of Infants and Young Children:"

"The factor of greatest importance to the health of children is their food and feeding.

Especially is this true of nurslings and children under two years of age. The only natural and best possible food for an infant is breast milk. If the mother has a sufficient supply and is in good health, or if a suitable wet nurse can be secured, nothing but breast milk and pure water should be given the child for the first five or six months. The child is very frequently injured by overfeeding. A feverish child, craving water, is often given an inordinate supply of food, by nursing, to quench its thirst. Many things besides hunger cause children to cry and be restless; and as a rule, for the first two months they should not be nursed oftener than once in two hours, and older children not so often. From the first, children should be nursed less frequently at night, and the mother must not sleep with her child at the breast.

After the first week or two the child should always sleep by itself. The mother should carefully guard her own health, using such diet as best agrees with her. She should not give the breast to the child when she is greatly fatigued or overheated, nor when suffering under great excitement from any cause. When the mother's milk is insufficient, or the child, for any reason, cannot be nursed, it will be necessary to resort to artificial food.

This is always an evil, and nothing but necessity should cause a mother to resort to it. The one factor of greatest importance in infant mortality is diarrhœal diseases, and these more frequently occur in children wholly brought up by hand. When breast milk cannot be had, cow's milk, properly prepared, offers the best substitute. Great care should be exercised to secure pure milk from healthy, well-fed cows. This is of importance, and should not be neglected.

The milk should be obtained as fresh as possible, and kept in a cool place in perfectly clean vessels. It would be better, perhaps, immediately to boil the milk, especially in hot weather, when liable to rapid decomposition. Never keep milk in damp, mouldy cellars, or in those containing decaying vegetable or other matter. Neither should it be kept in sleeping rooms, or those constantly inhabited. It should be remembered that nothing so readily collects and preserves filth of all kinds, as milk. Cow's milk, to be fitted for food for young infants,

must be diluted, from one-third to one-half, and slightly sweetened and salted.

For diluting the milk, barley-water is much better than pure water, acting both as a diluent and as a food. It may be prepared by boiling a tablespoonful of ground barley in a pint of water for fifteen minutes, and carefully straining through a cloth.* It is much better to buy the whole barley, which may be sufficiently ground in an ordinary coffee-mill. The proportion of barley water to be added will depend on the age of the child.

This food must be given at regular intervals, and to young infants should be administered blood warm, through a nursing bottle. A plain bottle of small size should be used, with a nipple, avoiding long rubber tubes, *and bottle and nipple must be kept scrupulously clean.*

Prepare enough milk for one meal, and if any remains after feeding, empty at once, and thoroughly scald the bottle and nipple. If the child thrives and gains weight on this diet, nothing else should be given it for food for the first six or seven months. A less quantity of water, however, should be added to the milk as the child grows older. If there is a tendency to constipation, oat-meal gruel, made in the same way as the barley-water, only boiled for a longer time, may be used to dilute the milk. If this food does not agree with the child, something else must be substituted, and in such cases a physician should be consulted, and prescribe its diet. Do not trust to infant foods sold in the shops, without his advice.

Children from nine to ten months of age may be allowed a greater variety of food, but milk should still form an important part of their diet.

Great care is required in the diet of children during the extreme hot months. *It is of great importance at this time to keep children cool.* The coolest room in the house should be assigned for their sleeping room, and they should be given a bath before bed time. During the heat of the day they should be lightly clad, and it would be well also to give them a cool sponge bath. If a child is seized with diarrhœa, keep it quiet in a cool place, and look carefully to its diet, which it would be well to reduce for a short time. If it does not soon get better, send for a physician, and do not give the child medicine without his sanction.

Finally, whoever would raise healthy children must be doubly guarded as to the cleanliness of his house and surroundings. The little ones suffer

*This should be prepared frequently, as it sours very quickly.—[Ed.]

first from unhealthy surroundings, and the house, from garret to cellar, should be clean and well aired. Have an eye to all sinks, water-closets, bath-tubs, etc., making sure, by repeated examinations, that the air of your dwelling is not being poisoned by escaping sewer gas. Remove filth of all kinds from house, cellar, and yard; be sure your drinking water is pure, and not contaminated by leachings from any cess-pool or privy vault.

You should not only put your own house and premises in proper condition, but insist that your neighbor does likewise."

Circular No. 38. of Maine State Board of Health.

Disinfectants and Their Uses.

It is desirable that the following revised list of disinfecting solutions and methods of disinfection be used in preference to any others which have been published by this Board. Experimentally it is found that the agents herein recommended are the most efficient as destroyers of the infection of the contagious diseases, while certain others which are omitted from this list are not so trustworthy as disinfectants, though as deodorizers or antiseptics they may be of value.

Corrosive sublimate as a disinfectant is remarkably prompt and effective in its action for most purposes, but its highly poisonous nature requires it to be used only under careful and intelligent supervision. Its solutions must be kept in glass, earthen, or wooden ware, and not in metallic vessels; neither must it be passed through leaden drain pipes, as it rapidly corrodes them.

Chloride of lime is very effective and for popular use has the advantage of being perfectly safe. This and the corrosive sublimate are much cheaper than any proprietary disinfectants and are much more trustworthy.

Disinfection cannot take the place of cleanliness or of ventilation.

Solution A.

Chloride of Lime,	4 ounces.
Water.	1 gallon.

Mix. Cost, about two cents, or fifty cents a barrel. This is about a three per cent solution.

Solution B. "*Purple Solution.*"

Corrosive Sublimate,	2 drachms.
Permanganate of Potash,	2 drachms.
Water,	1 gallon.

Mix and dissolve. Label, *Poison!* Cost, two or three cents a gallon, when the chemicals are bought by the pound.

The permanganate of potassium in this solution is used to give it color as a precaution against mistakes. It also, in this quantity, increases the deodorizing qualities of the solution. This is approximately a 1 : 500 solution of the sublimate ; therefore, mixed with an equal quantity of water or liquids to be disinfected it gives us a 1 : 1000 mixture. One ounce of this solution contains very nearly one grain of the corrosive sublimate.

SOLUTION C. *"Blue Solution."*

Corrosive Sublimate,	4 ounces.
Sulphate of Copper,	1 pound.
Water,	1 gallon.

Mix and dissolve, Label, *Poison!*

This is sixteen times stronger than Solution B and is intended as a standard solution, from which, by dilution with water, a solution of the proper strength for use may be made. To make from it a solution of the proportion of

1 : 500, add 8 ozs. to 1 gallon of water.
1 : 1000, add 4 ozs. to 1 gallon of water.
1 : 2000, add 2 ozs. to 1 gallon of water.
1 : 4000, add 1 oz. to 1 gallon of water.

SOLUTION D.

Labarraque's Solution,	1 pint.
Water,	1 gallon.

Mix. Cost, about twenty-five cents.

SOLUTION E.

Carbolic acid,	7 ounces.*
Water,	1 gallon.

Mix. This is approximately a five per cent solution, or in the proportion of 1 : 21.

Sulphur Fumigation. To use this effectively three pounds of sulphur should be burned in a room ten feet square. Every opening into the room, flues, doors, windows, cracks and crevices, must be closed, except the door by which the disinfector is to escape. The sulphur is to be burned in an iron kettle or other vessel set in a tub containing a little water to guard against fire. Ignite the sulphur with a few live coals or with a little alcohol or kerosene and a match.

*Seven ounces of the 90 per cent carbolic acid.

Leave the room quickly, for the fumes are highly poisonous when breathed, and close the door tightly. Let the room remain closed twenty-four hours or more. Then air thoroughly for several days.

Boiling for at least half an hour is a sure way to destroy infection. Immersion in Sol. B., one part to two or three of water, or in Sol. E., one half strength, will lessen the danger from infected clothing until it can be boiled.

The foregoing agents may be applied to disinfecting purposes as follows:

For Excreta. 1. *In the sick-room*, Sol. A., or Sol. B., a quantity greater than that of the matter to be disinfected.

2. *In privy vaults*, Sol. A., Sol. B., or chloride of lime in powder.

For Clothing. 1. Destruction by fire, if of little value.

2. Boiling for at least half an hour. 3. Immersion in solution of corrosive sublimate, of the strength of 1 : 2,000 for four hours (Sol. B., one part to three of water, or Sol C., 2 ozs. to one gallon of water.) 4. Immersion in Sol. E., one-half strength, for four hours and then boiling. 5. Articles of silk or wool which would be injured by boiling or by disinfectant solutions should be subjected to sulphur fumigation for at least twelve hours, the clothing being freely exposed.

For Furniture, Woodwork, etc. Washing thoroughly in Sol. B., one-half strength, or Sol. C., four ounces in one gallon of water, or in Sol. A.

For the Person. Sol. D. or Sol. E., one-half strength. Sol. B., one-half strength, may be used for the hands or a limited area, but not for the entire surface of the body.

For the Dead. Envelop the body in a sheet thoroughly saturated with Sol. B., or Sol. A.

For the Sick-room. While occupied, wash all surfaces with, 1. Sol. A. and water mixed half and half. 2. Sol. B., with water half and half, or Sol. C. four ounces to one gallon of water. *When vacated*, use sulphur fumigation as directed in the foregoing; then wash all surfaces with Sol. A., or Sol. B., one-half strength, and afterwards with soap and hot water; finally throw open doors and windows, and ventilate thoroughly.

THE

SANITARY INSPECTOR.

VOL. 1, NO. 2. AUGUST, 1887. 25 CENTS A YEAR.

Sanitary Notes.

A revised circular on Disinfectants has recently been published by the State Board of Health, copies of which will be sent on application.

Will local boards of health notice an error which occurred in the printing of "Circular No. 39—By-Laws?" In the middle of section six, the figure "6" should have been 4.

Since the introduction of yellow fever into Key West, Florida, this season, there have been 208 cases and 44 deaths.

In Chili from January to June, 1887, there were 10,236 deaths from cholera.

Cholera has prevailed in Catania, Sicily, for some time and there has been a large death-rate from the pestilence.

Some little time ago a thirty-ton garbage furnace was ordered by the Board of Health of Pittsburg, Pa. If this one proves satisfactory five others will be ordered. Milwaukee has also decided to dispose of her garbage by cremation.

A copy of the Second Annual Report has been sent through the secretary of the local board of health to each public library in the State, as far as their names are known. If any library has been overlooked a copy will be sent on application to the Secretary, Augusta.

The University of Michigan has taken steps to establish a hygienic laboratory, with Prof. Victor C. Vaughan as director. He is to have an assistant and all the work done is to be of a hygienic character. We shall look for some valuable and original work done under his direction.

Compulsory notification of infectious diseases, prompt and effective isolation of the sick and infected, and thorough disinfection of all infected articles and sources of infection; these must be the watchwords of the practical sanitarian of the future.—*Dr. Rohe.*

A sufficient number of copies of the Report in cloth have been secured so that the members of the local boards of health, the health officers, and the public libraries may have a copy in that binding. For the general circulation we are sorry to have only the paper covers.

Dr. Victor C. Vaughan reports that he has found tyrotoxicon in the ice-cream which poisoned 150 people at Amboy, Ohio, on July 4th. A few drops of the poison extracted from the ice-cream killed a kitten in ten minutes. He has also found tyrotoxicon in the ice-cream which poisoned 50 persons at Geneva, N. Y.—*Medical News.*

The New York City board of health recently abated a nuisance consisting of fifty-one cats.

It is reported that in the two months, June and July, of this year, 70,000 persons have died of cholera in the northwest provinces of India.

The blank, "Form I," for the use of physicians and others in reporting cases of the infectious diseases to the local boards of health will be supplied to the local boards or to physicians in any number needed upon application.

Will the members of the local boards of health please keep the numbers of THE SANITARY INSPECTOR on file for future reference.

The International Congress of Hygiene opens in Vienna, September 26. It is expected that the Hon. Stephen J. Young, member of the Board, who is now in Europe, may be able to attend as a delegate.

Since the report of the Hydrophobia Commission was made, M. Lutand, editor of the *Paris Journal de Medicine*, has delivered a lecture in London on the Pasteurian treatment. The lecture was delivered in English and the speaker criticised severely the report of the Commission. He solemnly declared that M. Pasteur's method is based on inaccurate experiments and fallacious conclusions, and that the method must be condemned in the interests of humanity and of science.

Vaccination in Zurich.

The operation of compulsory vaccination was suspended in Zurich, Switzerland, in obedience to popular clamor, in 1883. The deaths from small-pox per 1,000 total deaths for the two previous years and that year had been, in 1881, 7; in 1882, 0; in 1883, 8. They rose,

after compulsion had ceased to be used, in 1884, to 11.5; in 1885, to 52, and in the first eight months of 1886, to 85, per 1,000.

Bacteria in Air.

Dr. Frankland, to whose work in determining the numbers of bacteria in drinking water we have already referred, has exposed suitable sterilized cultivating media to air, at various places and dates, with a view to determining the conditions affecting the distribution of micro-organisms in the atmosphere. He found, in 10 litres of air from Primrose Hill, 9 organisms, and in the same quantity of air from the bottom of the hill (100 ft.) 24; from the spire of Norwich Cathedral (300 ft.) 7, from the ground 18; in air near the golden gallery of St. Paul's 11, in that of the churchyard 70. He determined that in air in a chemical laboratory 15 fell on a square foot in one minute, and 1,662 in a natural history museum, while in a railway third-class carriage near London, with window closed, no fewer than 3,120. In a barn during threshing, upwards of 8,000 organisms were determined as falling on one square foot in one minute. Of the micro-organisms there were many different kinds: moulds, bacilli, micrococci, and various forms of yeast.—*American Monthly Microscopical Journal.*

River Water and Typhoid Fever in Paris.

At a recent meeting of the *Academie de Medecine*, M. Cornil read a paper for two of his *confreres* upon river water and typhoid fever in Paris. The author has proved by his statistics the connection between the appearance of typhoid fever and the distribution in Paris of river, instead of spring, water. M. Leon Colin remarked that the correlation existing between the recrudescence of typhoid fever in barracks and the use of river water has been clearly demonstrated by recent epidemics. River water is now forbidden for drinking purposes in the barracks. M. Ranse was of opinion that when the administration was obliged to distribute Seine water instead of spring water, the Paris population should be duly apprised of the fact, in order that proper precautions may be taken.

Typhoid Infection in Milk.

In a paper on Typhoid Infection in Milk, Dr. Ali Cohen gives an account of an epidemic in Groningen, from Nov., 1884, to March, 1885. The infection was traced to a dairy in the suburbs where two persons had suffered in October from continued fever followed by

hypostatic pneumonia. Two others were attacked by undoubted typhoid fever, and died in consequence. At one corner of the dairy there was a manure heap, at another a pump, and close by a water-closet. This latter was used for the patients' dejecta. The milk of course was sold in the town, and the water from the pump was used for cleaning the cans and all necessary uses for the dairy. All the cases of typhoid in the town were those of people who bought milk from the dairy. Inmates of houses in which cases of infection occurred, who dealt elsewhere, escaped. In two cases the disease was induced by water drunk from the pump. A house close to the dairy possessed a pump which gave foul water. Two of the inhabitants, therefore, drank the clearer water of the dairy pump and were attacked, while two others who drank the foul water escaped infection. Forty-six cases of typhoid in the town could be distinctly traced to the dairy, since no one who purchased milk elsewhere was attacked. Even boiling the milk appears to have been unavailing, as fourteen people who drank boiled milk suffered, and three who took it only in coffee. That the disease was due to the milk is evidenced by the fact that people in different parts of the town under totally different hygienic and social conditions suffered, the only bond of connection being the milk purchased from the dairy. Dr. Ali Cohen remarks that this is a very weighty point, since in other epidemics of "typhus" due to drinking water most of the patients lived in the same place and under the same hygienic, or rather unhygienic, conditions.—*The London Lancet.*

Cholera Infection in Milk.

Dr. W. J. Simpson has recorded (Indian Medical Gazette, May, 1887) a limited outbreak of cholera on board the ship Ardenclutha, lying at the Esplanade moorings, Calcutta. An examination of the climatic conditions, of the water, food, and of the visits of the men on shore failed to explain the outbreak, which, however, was found to have a relation with the milk supplied by a native; 28 men who used preserved milk and 3 who drank none of any kind were not affected. Ten men drank the milk supplied by the native; of these, 4 had cholera and died; 5 had severe diarrhœa; 1, who drank a small quantity only, escaped entirely. The only other case of cholera on board occurred in a seaman, in whose case it was doubtful whether he drank the milk or not. He was the last attacked, and recovered. The milkman admitted that his milk contained 25 per cent of added water drawn from one or two tanks near his house. On the bank of

one of these tanks stood a house into which a case of cholera was brought on March 2 or 3. The dejecta reached the tank, and clothes were washed in it. On March 7, cholera cases occurred in persons living by the tank. The first case of diarrhœa on board the Ardenclutha occurred on March 8, the first case of cholera, on March 9. The milk was stopped March 10, after which no case occurred on the Ardenclutha, but one occurred at the tank on March 12.—*The Sanitary Record.*

Sanitation in Italy.

Unless it is Japan, there is no country that has advanced more rapidly lately than Italy. This is true as regards sanitary matters in that country. The public health interests of the Italian kingdom will henceforth be superintended by a Supreme Council of Health, to consist of a cabinet minister who will be president, the procurator-general of the Court of Appeal, a jurist, six doctors in medicine and surgery, specially qualified in public hygiene, a chemist, a pharmacist, a veterinary surgeon, three engineers, experts in sanitary architecture, a medico-sanitary inspector for the Army and a similarly qualified functionary for the Navy, and the directors-general of the statistical bureau and mercantile marine. Of these, six at least must be resident in Rome. In every provincial capital and for each district within the province there will be a board of health.

Water Analysis.

Arrangements have been made in the office of the Secretary for making sanitary examinations of water. We shall, therefore, after the middle of September, be able to make chemical analyses of specimens of drinking water at the request of local boards of health or physicians, and when the time will permit, for other persons. In making this offer it must be understood that the chemical work to be done will be limited entirely to water analysis, and, furthermore, to the sanitary analysis of water. By this it is meant that the means and time which are available for this work will not permit the analysis of specimens of water for purposes other than to determine their healthfulness or to determine whether they have been a probable factor in the causation of sickness. As it is highly desirable to have the analyses made as promptly as possible after the collection of the specimens, we request that notice be given in advance that an analysis is wished for. Directions will then be given from this office in regard to the collection of the specimen and the time to send it.

Public Libraries and Infection.

Dr. F. Taylor Simson, of Lavender Hill, has written to a daily contemporary in reference to a case in which scarlatina infection was apparently conveyed by means of a book lent from the local public library. By a curious coincidence, on being called to a second case of scarlet fever he recognized, lying on a table, the very book he had seen a week earlier at the house of his first patient, and, on inquiry, elicited the fact that the disease had declared itself within two days after the second patient had borrowed the book. It is, of course, a well-ascertained fact that books offer exceptional facilities for the dissemination of *contagium* in the form of particles, but the bearing of the fact on free public libraries has not been so fully investigated as it deserves.—*The Sanitary Record.*

The Lancet refers to a similar instance, which is perhaps the same, and adds: "The only possible safeguards are to be found—firstly, in a compulsory notification of infectious disease to the librarian, and secondly, the subjection of every returned book about which there is any doubt on the score of contagion to a process of disinfective fumigation. In this connection reference may be made to an incident recorded in a Russian periodical. Typhus fever has recently been very prevalent in Sebastopol, and it is stated that its ravages were to some extent controlled by the judicious action of the librarian of the town library, who appealed earnestly to the subscribers to cease temporarily from changing books in case of the fever appearing in their respective families. In this way the frequenters of the library and the readers of the books lent out, as well as the staff of servants and librarian have been saved from infection."

Milk for Infants.

Dr. T. Lauder Brunton has some important remarks in his paper on "Poisons formed from Food," on the quality of the milk that is given to infants, and the dangers arising from carelessness in using it. Milk, he says, may apparently be quite sweet at the time it is given, and yet it may really be "on the turn," as the term is. When swallowed by the infant, it may rapidly become sour and disagree, while a portion of the same milk, especially if kept cool, may appear to continue sweet for some hours afterward. It is highly probable that not the least advantage possessed by milk drawn from the breast over that given by a bottle is that the former is free from bacteria with which the latter is apt to be contaminated. Both may ap-

pear equally sweet when administered to the child, but the organisms present in the baby's bottle will continue their action after the milk has been taken, and render liable to produce vomiting and purging, which are symptoms of poisoning by putrefactive alkaloids. The risk of contamination is much greater when a bottle with a long tube is used, for the bacteria readily find a lodgement in it; and it is to be remembered that not only do the bacteria present in the milk at the time it is swallowed continue to decompose it in the stomach, but they continue to multiply, so that, if even a few are present in the milk when it is taken, they may within a short time multiply greatly, and produce extensive changes in the food, if they find conditions favorable to their growth in the intestinal canal.—*Popular Science Monthly.*

Disinfection.

One of the most important parts of public health work is disinfection. One reason why new cases of the infectious diseases so frequently arise after it is thought that sufficient means have been taken to destroy all contagion from the previous cases is, that the processes employed in disinfection were faulty. Our knowledge regarding the action of the so-called disinfectants is in a transition stage, but enough has been learned in the last few years, by exact experimental methods, to show that there are certain agents and processes which are absolutely deadly to all known forms of contagion when applied to them. Other agents and methods have a certain disinfecting value, but are not so certain in their action as the former class. Still another class of substances which have been used as disinfectants are found to have but little and some of them no germicidal power. The correct modern idea of a disinfectant is of something which has the power of destroying infectious material, hence something which is a killer of disease germs, a germicide. In the popular mind the chief attribute of a disinfectant is the power of removing smells, and the possession itself of odorous qualities. Deodorant, however, and disinfectant are not by any means synonymous. Some of the most certain of disinfectants, for instance corrosive sublimate, are entirely without smell, and are not so prompt deodorants as some other agents. On the other hand, many deodorants are very uncertain in their action or valueless as disinfectants, for instance sulphate of iron. We cannot therefore assume, because foul smells are banished or masked, that disinfection has been secured, and the greatest danger obviated.

Our late more confident assertions regarding the comparative values of disinfectants are based upon the results of the biological experi-

ments of various investigators in Europe and in this country. The most valuable work of this kind has been done by Koch and his collaborators of the Imperial Board of Health of Germany, and by Dr. Sternberg and his associates on the Committee on Disinfectants, which was appointed by the American Public Health Association in 1884. Their methods were similar and consisted in subjecting to the action of the disinfectants, or the reputed disinfectants, various forms of infection and other non-pathogenic micro-organisms, and observing the results. The fact of the destruction or non-destruction of the infection was determined with the microscope and by means of inoculation in culture mediums and in animals. For instance, by Koch, the spore-bearing bacilli of anthrax were subjected to the action of a 1 to 50 solution of carbolic acid for thirty days, and to a 1 to 20,000 solution of corrosive sublimate for ten minutes and then inoculated in test-tubes of nutrient jelly. In the case of the bacilli, which had received the month-long treatment with carbolic acid, there was a vigorous growth of the micro-organisms, while with that part of the infective matter which had received the sublimate solution there was no growth, thus showing that in the one case the disinfection was a failure and in the other that disinfection was complete.

In other cases the test of disinfection was made upon animals, and when a given strength of a solution uniformly left the animals exempt from the disease, which the infection produces when inoculated, the assumption was of perfect disinfection.

In succeeding numbers of the INSPECTOR something will be said about some of the individual disinfectants, and some practical indications will be given for their uses.

Home Missionary Work.

The safe arrival of one of our Maine girls in the heart of Africa as a missionary to the sable heathen is announced in the newspapers. The strength of conviction and the moral courage which sends a woman from her New England home and all the blessings of civilization, commands at least admiration, though it may not stimulate to emulation. But few of us feel that we have a call to expatriate ourselves to work among the inhabitants on the Congo or the Ganges, though not unwilling to do our part nearer home to help elevate the spiritual, moral and physical plane of man. Let us see what fields near home may be found for missionary work.

A few years ago when the cry of distress went up from plague-stricken Memphis, there was not long a lack of willing hands to care

for the sick. Even from the North the unacclimated took their lives in their hands and went down to the city of the dying. They could see there was work to be done for humanity's sake. At the same time, while yellow fever was claiming its hundreds of victims in the South, the preventable causes of disease in the North were sweeping away their thousands. Only those who have studied the subject know how great is the mortality from the preventable diseases. Certain houses have had a fearful record of sickness and of death, not because of the innate predisposition to disease of their tenants, but because these tenants or the builders of these houses were ignorant of sanitary principles that should be common knowledge. Towns formerly showing an unenviable death-rate have had their health conditions greatly improved by sanitary measures. Within the temperate zone there are death-rates and death-rates, differing for different towns and different countries not so much according to geographical or climatic peculiarities, as according to the slackness or carefulness with which their sanitary affairs are administered, and the general diffusion of correct sanitary knowledge among the people.

In these respects England leads the world. About fifty years ago a few John the Baptists, if not clothed in raiment of camel's hair, preached the gospel of sanitation in the wilderness—that is, in the wilderness of dense ignorance regarding public health. They were heard, but as usual the hand of the epidemic had been needed to gain an attentive audience. Cholera had twice swept over the island with deadly results, and threatened again. The pathway of the epidemic was strown the most thickly with the dead in just those places where the laws of decent living had been the most outrageously disregarded. The relation between cause and effect was unmistakable and the Government was led to take the first decisive forward step in public hygiene. Thus was begun the modern sanitary *renaissance*. A short time ago one of these early preachers of sanitation in England, the venerable Edwin Chadwick, who has lived to see a half century of public health work and something of its fruition, spoke as follows at the annual meeting of the Association of Public Sanitary Inspectors:

"It is due to state that, with all the shortcomings of defective local administration, the advances made in sanitary improvement during the reign of Her Majesty have been greater than in any country in any of the great States. In France the death-rate is three in a thousand more than in England, which means that there is a preventable slaughter there of one hundred and twelve thousand lives more

than there is now in England. In Germany the mortality of the army is the lowest in Europe, and there is much to say in the way of example of the economies wrought by it, but, under its municipal government, the death-rate of the civil population in Germany is very high. It is six in a thousand higher than in England, which means a sacrifice of one hundred and thirty-five thousand more lives than is now annually sacrificed in this country. In Italy the death-rate is eight in a thousand higher, which implies a sacrifice of two hundred and twenty-four thousand lives to the wastefulness of ignorance there. In Austria the devastation is still greater even than that. It is no less than eleven in a thousand above our death-rate, which occasions a loss in that empire of upward of four hundred thousand more than the present rate in England and Wales!"

The application which is to be made of the foregoing may easily be surmised. The estimates of the preventable mortality in the United States which are made by those who are the most competent to calculate it, places it at or above 100,000 unnecessary deaths yearly with their accompaniment of a far greater number of cases of preventable sickness, suffering both mental and physical, and pecuniary loss. In this direction there is ample field for beneficent work right at home. Here in our very midst is the car of Juggernaut beneath whose wheels the victims are crushed, and the image of Siva before which the devotees are suspended with the hooks in their flesh, and the horrible ordeal by poison very much like that of the Congo barbarians. Can any more worthy field be found for human endeavor than this? To learn the ways of healthful living, and by example and precept to help others to think, to throw away false hygienic traditions and practices, and to escape their commitant perils, is not this a broad field for philanthropic work?

Here we may save not only lives and health and wealth, but at the same time we shall strike at the chief root of the evil which fills our almshouses, hospitals and prisons. Let us then not forget the poor Christian while doing our good work for the heathen.

Circular No. 40, of Maine State Board of Health.

Plumbing and House Drainage Regulations.

The following Plumbing and House Drainage Regulations have been prepared to meet the needs of the cities and larger towns of the State, especially of those towns where a public water supply has been or may be introduced. The Board considers it of vital importance that such regulations be adopted and rigidly enforced in all places of any

considerable size. Where needed they should be made by-laws of the city or town, after their approval by a justice of the supreme judicial court, and their publication in accordance with chap. 123, Sec. 7, V, Laws of 1887.

By order of the State Board of Health.

A. G. YOUNG, M. D., Secretary.

1.—Before proceeding to construct any portion of the drainage system of a building, the owner, builder or person constructing the same shall file with the Board of Health a plan thereof showing the whole drainage system, from its connection with the common sewer to its terminus in the house, together with the location and sizes of all branches, traps, ventilating pipes and fixtures; and no such work shall be done in any building without the approval of said Board of Health. (Health Officer or Inspector.)

2.—The sewage from each building on every street provided with a common sewer shall be conducted into said sewer; and, if such sewer is not provided, the sewage shall be disposed of in a manner satisfactory to the Board of Health. (Health Officer or Inspector.)

3.—That portion of the house drain which is outside of the building and more than five feet from the foundation walls shall be constructed of iron pipe or salt glazed vitrified drain-pipe.

4.—That portion of the drain-pipe within the building, and outside within five feet of the foundation walls, together with the soil pipe, shall be constructed of cast iron with leaded joints, or of wrought iron with screw couplings. The waste pipe connected with the conductors from the roofs and other pipes inside the building, or outside and within five feet of the foundation walls, shall be constructed of iron with leaded joints, or screw couplings.

5.—The house drain and other pipes for the conveyance of sewage shall be laid with uniform grade and with a fall of not less than one inch in four feet, except in those cases where the Board of Health may permit otherwise.

6.—The main house drain shall be provided with a trap, which shall be located just outside or just inside the house walls and beyond all house connections. All pipes connecting a water-closet with a soil pipe shall be trapped, each separately, and close to the connection with each water-closet. All waste pipes shall be trapped, each separately, and close to the connections with each bath, sink, bowl, set of tubs, or other fixture.

7.—All soil pipes shall be carried at their full size through and at least two feet above the roof and left open. A provision shall also be made for admitting air to the house-drain side of the main trap.

8.—The joints in the vitrified pipe shall be carefully cemented, under and around the pipe, and the joints in the cast iron pipe shall be run and calked with lead. Connection of lead pipes with iron pipes shall be made with brass ferules properly soldered and calked to the iron.

9.—All changes in direction shall be made with curved pipes, and all connections shall be made with Y branch pipes. All joints and pipes shall be made air-tight. The whole work shall be done by skillful mechanics in a thorough and workmanlike manner, and satisfactorily to the Board of Health. (Health Officer or Inspector.)

10.—All drains now built shall be reconstructed, whenever in the opinion of the Board of Health it may be necessary.

Queries and Answers.

House Inspection. Can you advise me what not too expensive book to buy which will give a householder some help in determining whether his plumbing is O. K. or not? H. B.

Ans. Gerhard's Guide to Sanitary House Inspection is undoubtedly the book which will the best answer your purposes. $1.00. Wm. T. Comstock, New York.

Wet Cellar. The house where I reside has a cellar beneath it which is damp on account of wetness of the soil. Could you tell me of any effectual way to convert the cellar into a dry one? M. H. J.

Ans. The following method of treatment, if it is carried out correctly, will be effectual. Just outside the foundation wall and all the way around, if it is on ground which will permit it to be done without endangering the foundation, dig a narrow trench the bottom of which shall be one foot, or better, two feet, below the level of the cellar bottom. Have it dug with a slight but uniform grade to that corner of the cellar from which an outlet for the drain can the most easily be obtained. Then lay an open-jointed, unglazed, two-inch tile drain around the cellar in this trench, being careful to give it a uniform grade from the upper corner to the outlet at the mouth of the drain. The tiles should be laid end to end, not cemented or plastered with mortar, but wrapped at their contiguous ends with a small piece of tarred paper to keep the earth from the inside of the tiles. The tiles to be used are the red, porous, and unglazed kind, and they may be round ones with collars to hold the ends in juxtaposition, or the sole tiles, such as are advertised in this journal, may be used. Bed in carefully the tiles so they will not become displaced, and back-fill with material which will permit the water to go directly down to the drain. This is the way the cellar should have been protected when it was built. If the soil is such that this cannot be done without endangering the foundation, lay this tile drain in the way indicated just within the foundation wall and below the cellar floor level. This is not so effectual a way as with the drain outside the wall.

THE

SANITARY INSPECTOR.

VOL. 1, No. 3. SEPTEMBER, 1887. 25 CENTS A YEAR.

Sanitary Notes.

If local health officers in sending for blanks will designate what they want by the number of the "Form" it will ensure against any misunderstanding.

We would remind the local boards of health that the reports of contagious diseases which are made to them on "Form 1" should be retained, and kept on file in their offices, and notice given to the State Board on Forms 2 and 7.

In our first number we announced that our provincial neighbors on our east had a board of health, and now we are glad to be able to say that those to our north and west have a permanent board of health. The Provincial Board of Health of Quebec organized a few days ago, choosing Dr. Pelletier, of Montreal, Secretary.

The sanitary authorities of Hawick, Eng., have requested, and the public library board requires, that those who take books from the library shall sign a statement that no infectious disease exists in their houses; that they will return the books and give notice if any infectious disease appears.

In Liverpool, the health authority has a process at law by which he can alter, improve, or demolish an insanitary building at the expense of the state. Nearly 3,000 houses have been dealt with at an expense of $1,000,000.

The only way to get rid of sewer-gas is not to make any. The only way to avoid filth, in gaseous, liquid, or solid form, is to leave nothing around, even for an hour, to putrefy. [Wight.]

It is as certain that a high mortality can be reduced, by hygienic appliances, down to a certain limit, as it is that human life can be sacrificed. [Dr. Farr.]

Water Analysis.

In answer to enquiries, we would say that there will be no charges for analyses of water made in the office of the State Board of Health. In all cases application must be made to the office of the Secretary for instructions in regard to collecting samples for analysis, before the samples are sent.

Cholera News.

On account of the detestable policy of concealment pursued by the governments of most of the southern European countries, it is not easy to learn promptly of the existence of cholera there. The main incidence of the disease is still upon the island of Sicily, but there are rumors which are thought to be not without foundation that it is spreading to a considerable number of other points. Suspicious cases have occurred in the provinces of Benevento and Avellino, and in Rome itself. In Naples, it is asserted, there has been a reappearance of cholera. In Malta fresh attacks and deaths from it are recorded every day.

National Conference of State Boards of Health.

The meeting of the National Conference of State Boards of Health was held in Washington, Sept. 7th and 8th. Nineteen states and the Province of Quebec were represented by delegates. The papers and the discussions were in the direction of the every day practical work of the health officer. The sessions, however, would have been more of a success if they had not been overshadowed by those of the International Medical Congress, which were held at the same time and in the same place. The meeting of next year will be in Cincinnati.

Yellow Fever Inoculation.

One of the most interesting papers read before the Section in Public and International Hygiene, at the International Medical Congress, was that of Dr. Domingos Freire of Rio Janeiro, on the protective inoculation against yellow fever, with statistics of the results of his work and the microscopic demonstration of the microbe of yellow fever. According to his statements many of the inoculations were made upon persons who were recently arrived in Rio from cooler latitudes where yellow fever is not prevalent, and who, therefore, must have been considered susceptible to the disease. The inoculations were mostly done in those quarters of the city the most unfavor-

ably situated hygienically, and where yellow fever occurs the most. The following is a general resumé of his results:

No. of persons inoculated in 1886,	3473
Deaths among the inoculated,	7
No. of persons inoculated in 1885,	3051
Deaths among the inoculated,	1
Total number inoculated,	6524
Total deaths from yellow fever	8
Death rate of the inoculated,	1 in 1000

Deaths from yellow fever among those not inoculated, according to official figures:

In 1886,	1389
In 1885,	278
Total,	1667
Yellow fever death-rate among those not inoculated,	10 in 1000

The discussion which followed the reading of the paper was animated, and the most interesting part of it was the answers of the distinguished author to numerous critical questions. One of these was as to whether his system of inoculation had proved itself efficacious when done in the same houses where there were cases of yellow fever. In answer to this Dr. Freire repeated that the larger number of the inoculations had been done in the infected quarters, and that in numerous cases, inoculations had been made in infected houses and that the inoculated had shown an immunity while living under the same roof with infected persons.

At the close of the discussion, resolutions were adopted to the effect that evidence had been presented which gave reasonable grounds for believing that the system of inoculation is protective against yellow fever, and urging the various national governments to take measures to have the question positively determined.

The Quarantine Question.

In the International Medical Congress, which meets in Vienna the latter part of this month, there will undoubtedly take place, again, the frequently repeated European squabble in regard to the methods of quarantine for cholera. In these international debates on this question, the last of which occurred before the International Cholera

Commission at Rome, England has stood almost single handed in defending her methods. She puts her trust in a system of medical inspection, and in removing from the midst of her population those conditions which are essential to the spread of this cholera infection. On the other hand, almost all the other European nations have placed their reliance upon fixed and hard lines of demarkation at which the epidemic has been asked to halt, but the fact is, it very rarely has halted at these quarantine lines. So far, the superior success of the English practice has given them the better part of the argument. The reopening of the discussion at Vienna will be looked for with interest.

As to the Cause of Summer Diarrhœa.

Dr. Thompkins, Medical Health Officer, Leicester, England, has been making some investigations in connection with the possible bacteriological causation of summer diarrhœa, and, though he has not proved anything conclusively in this line, his observations are interesting and suggestive. His city has a bad notoriety among the English towns for a very high death-rate from diseases of this class. Observing that the diarrhœal diseases were very much more prevalent in the lower and flatter parts of the city, he sought to ascertain whether experimental research upon the air of this less favored district would give any definite results, or different ones from those of the air in other parts; at the same time to examine the organs of the body in fatal cases for any corroborative evidence. Post mortem examinations ascertained the presence of micro-organisms in the kidneys, mesentery glands and in the ulcerations of the coats of the intestines (as of course was to be expected). These were cultivated by the methods which are common to bacteriologists and were carried through successive cultures. These pure cultures were found capable of producing a sharp attack of diarrhœa when taken experimentally. His photographs of the micro-organisms show them to be shorter and thicker than those of Asiatic cholera.

Examined by plate cultivations in nutrient gelatine, the air in the streets of those parts of Leicester where the disease most prevailed was found to contain from 2,000 to 5,000 or 6,000 of the micro-organisms per cubic metre, while in the air of more open and higher districts they varied from 60 to 900 per cubic metre. Cultivations with these micro-organisms in the air gave the same results as those from cadavers.

Absurdity.

Many of the hygienic dicta which are sent out under the guise of sanitary science are of a kind to make the public health student who carefully takes his steps forward and is less dogmatic in enunciating his conclusions, a little ashamed of the company with which he is sometimes associated in the public mind. A new one is this: "We believe from our experience in America that diphtheria never enters a family where the Irish potatoes are banished. We have every reason to believe that the excessive use of the Irish potatoes as a food is the cause of our North American diphtheria."

Since first seeing this, the whole flood of our cogitations has drifted us to the conclusion that the writer is wrong. We are certain that he is all wrong, and that potatoes are not indictable for this pestilence, but that it is caused by pumpkin pie.

Our reasons are these: We never knew of a person attacked with diphtheria who had not eaten pumpkin pie, and in many of the cases which we have known the little patients had devoured them like veritable pumpkin-pie princes. The pumpkin pie season is very often followed by a greater prevalence of diphtheria as the cold weather advances, and this is the direct consequence of this perilous earlier season of juvenile feasting. With this warning parents should bounce from the kitchen every cook who says pumpkin pie. The vine itself is worthy only of everlasting showers of squash bugs and late June frosts.

It has been objected to our theory that diphtheria prevails where pumpkin pie is not much known. It may be true that diphtheria prevails where pumpkin pie is comparatively rare, but never where it is entirely unknown. For instance, in Berlin ten years ago, there was a severe epidemic of diphtheria, where pie in any form is rare, and during a half year in that city only one pie was seen. This, however, was a pumpkin pie, and it was two feet long and eighteen inches wide, and we did not get near enough to it to try its depth. Its proportions I am sure were ample enough so that every fated child in that epidemic might have had a piece, and I am quite sure that this was the cause of the outbreak.

Dropping all this nonsense, which is not deserving of Artemas Ward's system of labelling so it may be known, we will say that there is only one unquestionable cause of diphtheria, and that is contagion. Other than this we may believe that certain conditions have something to do with favoring the spread of this contagion and making the people more susceptible to it.

The Relation of Schools to the Contagious Diseases.

At this season of the year we should bear in mind the lesson which is taught by the frequent outbreak of the contagious diseases soon after the schools are reopened after the vacation, or by the reappearance of the diseases soon after the reopening of the schools which had been closed on account of diphtheria or some other infectious disease. The reappearance of the disease under these circumstances happens too frequently to be a coincidence and points to a causal relation, the nature of which is not difficult to discover. In the Reports of the State Board, case after case is given in which there can be no doubt that the subjects of both diphtheria and scarlet fever retain their infective power for some time, and are therefore dangerous to other children,—are wandering torches, which when thrust into combustible material cause a conflagration. Again, many other cases are given in which rooms, clothing, or even very small articles which have not undergone disinfection have given rise to new outbreaks of disease weeks, months, even years after their infection occurred. Knowing the facts that the period of contagiousness of the patient is often prolonged, and that clothing and other articles which have become infected may retain their dangerous qualities indefinitely, if not disinfected, we cease to wonder at the frequent reappearance of such diseases as diphtheria and scarlet fever at the beginning of the school terms. So much thoughtlessness and indifference in that direction is criminal.

Where diphtheria or other infectious disease has occurred in a school district what is the proper preventive management as regards the safety of the school? First it should be remembered that we have a beneficent law, the provisions of which, if strictly carried out, would make these school epidemics comparatively rare.

Sec. 19. Whenever small-pox, diphtheria, scarlet fever, or other contagious disease shall appear in a town or a school district it shall be the duty of the local board of health immediately to notify the teachers of the public schools in the neighborhood, of the fact, and it shall be the duty of all teachers and school officers when thus notified, or when otherwise they shall know or have good reason to believe that any such disease exists in any house in the neighborhood, to exclude from the school-house all children and other persons living in such infected houses or who have called or visited at such houses, until such time as the local board of health (or attending physician) shall certify that such children may safely be readmitted.

SEC. 20. When persons from houses or places which are infected with any of the diseases specified in section nineteen have entered any school-room, or when, from any other cause, the school-room has probably become infected, it shall be the teacher's duty to dismiss the school, and notify the school officers and local board of health, and no school shall be again held in such school-room until the room has been disinfected to the satisfaction of the local board of health, and it shall be the duty of the school officers and board of health to have the room disinfected as soon as possible.

In compliance with other sections of the law, householders and physicians are required to promptly report cases of the infectious diseases to the local board of health. The local board of health, therefore, is in a position, or should be, to render an efficient service to the schools by keeping the teachers informed in regard to infected families. After such notification, or when the knowledge is derived from other sources, the teachers have conferred upon them the very useful authority to exclude pupils from infected houses. Furthermore, when, in the opinion of the teacher, the school-room has become infected, it is made the teacher's duty to dismiss the school and notify the school officers and board of health. Under these circumstances, it is made the duty of the local board of health to promptly disinfect the school-room, and in regard to the practical carrying out of this disinfection we have a few words to say.

If there are any reasons for believing or suspecting that contagion has been introduced into the school-room, the work should be done thoroughly and in such manner as not to admit of the possibility of the contagion's remaining. This may be done in twenty-four hours or less, so that when promptly done there may not usually be a loss of more than one day of school.

The first step in the disinfection should be to wash thoroughly the floors, desks, and walls with the corrosive sublimate solution of the strength of 1 : 1000, or Solution B., one-half strength. After this washing down with the liquid disinfectant, sulphur fumigation should be employed, using at the rate of at least two or three pounds for every one thousand cubic feet of air space. The few ounces of sulphur which are sometimes burned for the purpose of disinfecting such rooms are entirely useless. The sulphur or brimstone should be put into a large iron kettle or vessel, and for protection from fire, this may be set in a large wooden tub and surrounded with water. The sulphur may be lighted with a small quantity of alcohol or kerosene,

or with a few live coals. After the room has been tightly closed for from twelve to twenty-four hours, the windows and doors should be thrown wide open, that it may receive a thorough ventilation. After our local health officers have gained a little familiarity with this practical sanitary work, disinfection of this kind may be promptly done with little trouble and with but little cost. With the provisions of these two sections of the law faithfully carried out, there would be a great diminution in the loss of school time which has been caused by the past necessity of closing schools when infectious diseases appear. With exclusion of infected pupils until they may safely be readmitted, and the prompt disinfection of the school-room, when, at rare intervals, it may become infected, there would be a less dangerous order of things, and what many school and sanitary officials outside of our State are striving for.

Purification of Water by Aeration.

The Hoboken, N J., Water-Works, where the process of purification practised has been that of pumping air into it under high pressure, recently found that the water in the reservoir was troubled with the growth of algæ during the warm weather of this summer in spite of the aeration of the water in the force-main. The experiment of aerating the whole body of water in the reservoir is now being tried, under the advice of Professor Leeds, who is understood to have suggested the aeration in the main, which has proved ineffectual in the late excessive heat. Perforated pipes have been laid in the bottom of the reservoir, and air pumped through them, "converting the whole reservoir into a boiling spring," as is stated in some of the reports. This has, in its turn, been effective in purifying the water. The cost is not given.

Whooping-Cough in a Cat.

For the past few weeks I have had under my care a little boy suffering from a more than usually severe attack of whooping-cough, and his mother informs me that for quite a fortnight their cat has had five or six distinct fits of coughing daily, similar in every respect to the boy's, which end after the expectoration of frothy mucus. The cat between the attacks is tolerably bright and active, though not so lively as she formerly was, and has considerably fallen away in condition. This is the first instance of a domestic animal becoming affected through, apparently, infection from a human being, which I can remember having observed, and it occurred to me that the fact may be of interest to others.—*British Medical Journal.*

A Fire Bug.

The New York bureau of vital statistics has received the following from Dr. A. Jacobi. It shows that people are waking up to danger. "Ann Donnelly is a cook. She was in the house of Lieut. Reed, West Point. She went to New York to bury a child of hers who died of diphtheria at the house of Mrs. NcKee, No. 327 West Forty-third street, about May 20. About ten or twelve days ago she unpacked a trunk in Lieut. Reed's house in the presence of his children. The boy is recovering from diphtheria; the girl, of five years, died day before yesterday. The cook has disappeared from the house, trunk and all, ready to unpack again somewhere else and go on murdering. If that woman cannot be sent to the state prison for sowing death wherever she goes, can she not be hunted up and stopped from doing mischief?"—*The Sanitary News.*

Money Value of Life.

The calculation of the money value of human life and the consideration of the money saved to a nation by sanitary science is a favorite line of study with Edwin Chadwick, the veteran English sanitarian. He is president of the association of public sanitary inspectors and, as such, recently read a paper on the financial value of sanitary science. He calculates upon evidence, which it is not necessary to reproduce, that the money charges upon the community arising from excessive sickness and mortality which is prevented by sound sanitation, amount to about 62,000,000 pounds.

He likens money for sanitary work to money voted by parliament for the maintenance of the army and navy and for the repair of defences and says that we have an annual invasion of an enemy in form of preventable disease, which every year fights and wins a battle against the community, and slays upwards of 100,000 people beyond the present reduced death-rate, all of whom we know and have proved might have been saved by more efficient sanitation, and at a saving of double the annual cost of naval and military defences.

All this excessive loss of life and money is due to wastefulness and ignorance in legislation and administration. The only effective preventative will be the superior economy of tested and corrected sanitary science.

Executive functions are generally confided to persons inadequately furnished with the qualifications required, and incapable to fill the offices. Adequate salaries with a system of promotions and retire-

ments, as may be found in the army, will keep the hospitals empty. All these officers should be centralized under one minister of health.—*Sanitary News.*

Fruit as a Food.

No great time has elapsed since we had occasion to make a few remarks on the value of fruit as a light form of diet, and to refer to a few simple rules which those who partake of it do well to observe. Taken in the morning, fruit is as helpful to digestion as it is refreshing. The newly awakened function finds it an object of such light labor as will exercise without seriously taxing its energies, and the tissues of the stomach acquire at little cost a gain of nourishment which will sustain those energies in later and more serious operations. It is an excellent plan, with this object in view, to add a little bread to the food eaten. While admitting its possession of these valuable qualities, however, and while also agreeing with those who maintain that summer, when the body is, at all events in many cases, less actively employed than usual, meat may be less, and fruit or vegetables more freely used as a food, we are not prepared to allow that even then an exclusively vegetarian regimen is that most generally advisable. Meat provides us with a means of obtaining albuminoid material which is indispensable in its most easily assimilable form. It affords us in this material not only an important constituent of tissue growth, but a potent excitant of the whole process of nutrition. It has, therefore, a real, definite, and great value in the ordinary diet of man, and the wholesomeness of fruit combined with farinaceous food as an alternative dietary is not so much an argument in favor of the vegetarian principle as a proof that seasonable changes in food supply are helpful to the digestive processes and to nutritive changes in the tissues generally.—*The Lancet.*

Contagiousness of Consumption.

The following observations were made by Zina Pitcher, M.D., during her residence among the natives of southeastern Alaska:

"I was struck within a short time, as is every one, by the terrible ravages of the disease among these children of the Northwest. Very few are there, though apparently in prime condition physically, who do not exhibit indisputable symptoms of the trouble upon a close examination. Men, that to-day you see hunting and fishing, to-morrow come to you complaining of dyspnea, feeble heart-action and hem-

orrhage. As a rule, death comes to them comparatively early. But not as early as with the whites under similar circumstances, there being an entire absence of shock, which contributes not a little, generally, to the rapid decline of patients similarly afflicted in civilized lands. The native population is, and has been for some time, steadily decreasing. It is true that an epidemic of small-pox some years since contributed largely to that end, but not to such an extent that the ravages of consumption were lost sight of. The sudden onset of the more alarming symptoms may be in a measure explained by the almost universal prevalence entailed in the respiratory and circulatory organs in "packing" immense loads upon the back by means of a band passed across the chest horizontally, and attached to bands at either extremity, passing from the load, under the arms, in front of and over the shoulders, back to the load again. This, as a matter of course, renders breathing a difficult feat. The dampness of the climate, lack of good hygienic surroundings, intermarriage with Russians, existence of syphilis and scrofula, may explain the existence of the disease, but not its rapid spread and presence throughout whole families. One would expect to find among a people accustomed to a climate from infancy, taking plenty of out-door exercise, living extensively upon a diet of fats and oils, and remarkably free from gastric disturbances of any type, a certain percentage free from it, but such is not the case; it is the exception, rather than the rule, to find a man, woman or child free from it. After examining a large number of cases, young and old, it struck me that some unusual agency must be at work, but look where I would, no remarkable explanation could be found, until I chanced to be in a house visiting a patient during the preparation of the evening meal. The klutchman (wife) was assiduously chewing a mass of something, spitting it, when thoroughly moistened, into a spider. Watching more closely, the substance chewed proved to be sea-weed, prepared in the fall by pressing into square cakes and drying. This she picked to pieces and thrust into her mouth, masticating it as described. The spider at last becoming full, a quantity of seal or herring oil was poured over it, a few hot coals stirred in, and later warmed slightly over a fire. Of this delicate dish the entire family partook briskly. This klutchman was a consumptive, and the patient (her son) was also suffering from the same complaint.

I learned that this manner of preparing the food was customary among those who still cling to the ancient customs and manners. A

berry is prepared similarly, with the exception that the siwash (man) does the masticating. After observing these families pursuing this disgusting custom and noting the percentage of cases, the families having partially and wholly adopted "Boston manners" were investigated and the percentage found materially less. It might be argued that better housed, better clad, it might not be expected. But on the other hand a complete change of habits, less exercise, and an absence of an extreme oil and fat diet under the same climatic influences would tend to deteriorate rather than elevate the physical standard, for it is a fact borne out by practical illustration that Indians or others accustomed to an out-door, roving life succumb in many instances to the disease when confined in our houses of correction and prisons, although well housed, well clad, and fed, being allowed in addition regular exercise. If, then, animals and fowls succumb to the disease when the sputa of a bona fide consumption is introduced to the digestive organs, why can not the rapid spread of the trouble among these natives of the Northwest be accounted for in a like manner, the contagion being conveyed in the food masticated as described? It is expected objections enough will be found to this theory, but if it but invite discussion, much good may come of it.—*Medical Age.*

Queries and Answers.

Stoppage of Waste Pipes. We have had much difficulty on acacount of obstruction in the waste pipe of our sink. I should be very glad if you could give any method of removing or preventing this difficulty. Mc G.

Ans. The obstructions of the waste pipes of kitchen sinks and of laundry tubs is nearly always caused by the grease and soap which are contained in the wastes, and this, hardening as it becomes cool in its passage along the pipes and being intermixed with lint and threads, forms a lining on the inside of the pipe which gradually fills and sometimes completely occludes its calibre. This may be prevented by frequently enough pouring down a hot and strong solution of potash. When the pipe is entirely filled so that the water does not run away, the water should be removed from the pipe above the obstruction, the pipe filled with potash, and then hot water should be poured down. Where the obstruction is caused by this most common cause, this treatment will speedily clear the pipe.

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Sanitary Notes.

To make it more convenient for physicians in reporting cases of the contagious diseases to the local boards, a supply of the small blank, "Form 1," has been sent from this office to every physician in the state.

At the quarterly meeting of the State Board of Health, Sept. 26, the Secretary reported that the municipal officers in all but 13 towns had made the appointment of a local board of health. There had therefore been reported to this office 432 local boards of health. Of these 19 had not yet reported their organization to the State Board as the law requires.

Advices from England report that, in several of their larger towns, there is a remarkable tendency to epidemic prevalence of scarlet fever. In London, at last accounts, there were 1,900 patients sick with this disease cared for in the fever hospitals.

To the credit of the medical profession it may be said that its members have almost invariably shown themselves willing and glad to fulfil the requirement of the law in regard to reporting cases of the contagious diseases to the local boards. In a very few cases in which there has been a persistent and wilful disregard of the law, local boards have found it their duty to enter action for the recovery of the penalty.

New York has an affliction worse than eels in its water mains. Her health department has found live frogs in the milk supply, and is now, we believe, considering the advisability of prohibiting unfiltered water for the cows.

Some of the subjects on which physicians have hitherto been asked to report will be included in the questions submitted to the local boards of health. Nearer the close of the year a list of topics will be sent to physicians, soliciting reports of any observations under their heads which may be thought to present points of sanitary interest.

During the warm weather of the last weeks of August hydrophobia became epidemic in Southern Russia, and the Pasteurian Hospital at Odessa was overwhelmed with cases.

A few years ago one of the most eminent and practical of American State sanitary officers said "We do not know that any chemical disinfectants destroy the germs of a disease." This is no longer true. It is now known that disease germs, when subjected to the action of certain chemical disinfectants, are very quickly and surely killed. To know what these most trustworthy disinfectants are, and to know how to use them efficiently, is a kind of knowledge which will often make a local board of health a real benefaction to its town.

Dr. Sexton's observations on the injury which often results from boxing the ears is not the first note of warning which has been sounded against this mode of punishment; and now comes a neighbor who says that she has heard that punishment received in the good old fashioned way, flexed over the knee, has a tendency to produce disease of the kidneys. Verily, parents are in a quandary.

Without waiting to see whether the cholera infection, which is now quarantined on Hoffman Island, shall reach and establish itself on the main land, or, if it does, whether it will endure the cold of the coming winter, it is the better part of prudence for our towns to make good use of the months which will intervene before the advent of another warm season, to improve their sanitary conditions.

Whether, in the near future, cholera is to extend itself on this continent or not, public and private sanitary work and the money spent in it will be well expended. Work of this kind which was done two years ago in some of our states anticipatory of the advent of cholera was found to be followed by a marked diminution of the general sickness and death rates.

Japanese Progress.

Yeiji Nakajima is the name of a talented young Japanese, who has been sent to this country by the Imperial university at Tokio, to study hydraulic and sanitary engineering. He has been connected with the water-works at Kansas City for some months, and was in Chicago this past week looking at the works in this city. From here he went to New York City, where he will be connected with Rudolph Herring in

the engineering work which the latter is to take up there in a few weeks. The Japanese government will, after a year, then send the young gentleman to Europe. Can anything more enterprising be said of any government?—*The Sanitary News.*

Poisoning Due to Diseased Bread.

In *The Lancet* recently an English physician reports a history of irritant poisoning, the symptoms of which were diarrhœa, epigastric pain and vomiting, the cause of which he referred to a loaf of bread which was mouldy. Seven persons who had partaken of the bread were made sick; three others who had eaten none of it were not affected. Chemical analysis detected no mineral poison and the sickness could not be referred to any other article of food or drink.

A Simple Test of Kerosene Oil.

Take an ordinary pint tin cup. Fill it within an inch of the top with water warmed to the temperature of 120° F. Pour on this water three or four tablespoonfuls of the oil to be tested. Stir the oil and water together, and wait a short time, say a minute or two, for the oil to collect on the top. Try the thermometer again, and if the temperature is more than one degree from 120 F. add a little cold or hot water, as the case may be, so as to bring the temperature within one degree of 120 F. Then stir again and give time, as before, for the oil to come to the top. Now apply a burning match or lighted taper on a level with the top of the cup, say within half an inch of the oil. If within one second no flash occurs the oil is reasonably safe; otherwise, it is unsafe. Purchase four or five gallons of oil at a time, and apply this test at each purchase.—*Bulletin N. C. Board of Health.*

Results of Work with Scarlet Fever.

In the introductory to the Second Report of the State Board of Health of Maine, reference is made to the good results which have followed the efforts of the local boards of health to restrict diphtheria in Michigan. More recently the Secretary of the Board of Health in that State has presented a table showing the results of work with scarlet fever in 1886. In this table it is seen that in those cases where the health officers acted promptly and efficiently, and the people coöperated perfectly, there were only one-fourth as many cases, and

about one-fifth as many deaths in the average as in outbreaks where they did not so act.

In forty-five outbreaks where isolation and disinfection or both were neglected, the average number of cases to each outbreak was 13.84 and deaths 1.02; in fifty-nine outbreaks where both isolation and disinfection were enforced, the average number of cases to each outbreak was 3.03 and deaths 0.22.

The Lomb Prize Essays.

We shall be doing the public a good service in calling attention to these essays which were prepared by persons especially fitted to write on the subjects of which they treat.

These works won the prizes offered by Mr. Henry Lomb, of Rochester, N. Y., through the American Public Health Association, and cost nearly two thousand dollars. They are written in language devoid, so far as possible, of technical terms, and may be comprehended by any person or family. It is designed to distribute these works as extensively as possible among the American people, and to this end the price has been placed upon the basis of the cost of a large edition. The titles of the four essays are as follows: No. 1, Healthy Homes and Foods for the Working Classes, by Prof. Victor C. Vaughan, M. D., Ann Arbor, Mich.; No. 2, The Sanitary Conditions and Necessities of School-Houses and School-Life, by D. F. Lincoln, M. D., Boston, Mass.; No. 3, Disinfection and Individual Prophylaxis against Infectious Diseases, by Geo. M. Sternberg, M. D., Major and Surgeon U. S. A.; No. 4, The Preventable Causes of Disease, Injury, and Death in American Manufactories and Workshops, and the Best Means and Appliances for Preventing and Avoiding them, by Geo. H. Ireland, Springfield, Mass. Prices: Single essays, 10 cents; any two of the essays, 15 cents; the four, 30 cents; the four bound in cloth, 65 cents; the same in more elegant binding, $1.00. Orders may be sent to Dr. Irving A. Watson, Secretary of the American Public Health Association, Concord, N. H.

Circulars of the State Board of Health.

Among its publications the State Board of Health keeps the following circulars and pamphlets constantly in print for the use of local boards of health and for distribution to individuals. Copies of any or all of them will be forwarded upon application to the Secretary.

Practical Facts about Cholera.

Diphtheria, its Prevention and Restriction.
Scarlet Fever, its Prevention and Restriction.
Typhoid Fever, its Prevention and Restriction.
Small-pox, its Prevention and Restriction.
Does Vaccination Protect?
Contagious and Parasitic Diseases of Animals.
Treatment of the Drowned.
Construction and Management of Earth Closets.
Notes on Disinfectants.
Disinfectants and Their Uses.
Water Supply, Public and Private.
Books on Public Health.
Rules for House Drainage.

Prevention of Diphtheria in Italy.

In a recent number of an Italian sanitary journal* an editorial notice of a recent work on diphtheria published in that country gives the following conclusions of the author regarding the prevention of that disease.

Every case of diphtheria, although remaining sporadic, should be isolated absolutely. Every object which remains soiled with the excretions of the patient should be destroyed with fire. The most complete purification of the locality should be carried out.

When the cases of diphtheria become frequent in a community, an appropriate hospital should be opened for the reception of the sick.

The attendants and members of the family who assist the sick should avoid coming in contact with other persons, should be instructed in the necessity of maintaining extreme neatness, of avoiding the use of those utensils which have been used by the patients, and finally should be instructed to frequently rinse their own mouths with a solution of boracic acid or salicylate of soda.

If the epidemic should still extend, the local authorities should order a periodical medical inspection of schools, and other places where children are congregated, and should have the localities themselves purified and disinfected, and in case several children should become sick, should have the establishment closed.

The teachers should be directed to accustom the pupils to opening their mouths voluntarily to let the physician examine their throats. The inspection of the throat should be made daily during the continu-

*Giornale della Reale Societa Italiana D'Igiene.

ance of the epidemic, and children should not be received into the schools with the premonitory symptoms of the disease. Re-admission to the school should not be permitted earlier than ten days after complete recovery, nor before inspection by the physician who is delegated by the local authority.

Parents and the public should be informed by physicians and by special printed instructions, regarding the most useful measures to ensure the safety of their children during the epidemic, and of the greater peril incurred by those children who suffer from chronic or recurrent affections of the throat and nose.

Which Policy?

In the advent of an outbreak of a contagious disease in a town there are two policies, either of which the health and municipal authorities may favor. The one is to attempt to conceal the fact of the existence of the infectious disease, or if the news has leaked out, to try to belittle the gravity of the situation; the other is to publish, or permit to be known, the exact truth in the matter. The one is the permission of the contagion to lie in ambush pending the approach of the unsuspecting victim, the other is the recognition of the right of every person to know where danger is, that it may be avoided. The one is a policy of equivocation and untruth, the other is a policy of truth and honesty. The former is usually prompted by commercial or financial considerations. It is imagined that it is going to be something in the municipal pocket to cover up the truth, but where there is fire there will be some smoke. This policy defeats its own ends, nearly always. The attempted concealment is a failure, and rumors of danger are often exaggerated and more terrifying than would be a knowledge of the exact truth. Such a line of action is also calculated to sweep away from the citizens and from outsiders all confidence in the local authorities.

A nice little illustration of the comparative results of equivocation and of stating the truth occurred in connection with that one case of small-pox which we had last summer. The Italian was attacked with the disease eight miles on the line east of Greenville and was brought out to the village. A policy of concealment was at first suggested, but rumors of small-pox reached the men on the line west of the village and immediately they struck, not for more pay, but for more light. A frank statement to them of the whole truth allayed their

fears and caused them to return to their work. The unsuccessful and unfortunate results of this despicable policy have been illustrated many times during the last two years in southern Europe, and it is very certain that if the surplus energy that was expended in hushing-up had been put forth in extinguishing the first sparks which started the conflagration, and especially in removing the combustible matter before the sparks were applied, we should have been spared many subsequent harrowing accounts of cholera's work. As a contrast to this, England generally and many states and cities in this country may be counted upon to give immediate notice of the outbreak of a contagious disease, whether it be cholera or diphtheria. This is found to be not only the more honorable course, but it is also financially the best paying policy. With the location and the amount of the danger known, there is a much better prospect that it will be promptly and successfully met.

Which of these policies shall be ours? There can be but one answer. As local boards, or as State Board, the policy of truthfulness is the only one to be thought of. It pays in the presence of an outbreak of a contagious disease to have the confidence of the public in our truthfulness as well as in our ability.

Cholera and the New York Quarantine.

The following communication from Dr. Wm. H. Smith, Health Officer at the port of New York, to the Surgeon-General, U. S. Marine Hospital Service, under date of October 5th, will give the facts regarding the importation of cholera into that port and the methods of treatment to which the passengers and the baggage are subjected.

"The steamship 'Alesia' from Marseilles, August 29, and Naples, October 3, with most of her cargo taken at Marseilles—at Naples she received her cargo by lighters—arrived at this quarantine and was inspected the morning of September 23. The report of the surgeon showed that there had been eight deaths on board, six of which were unquestionably cholera. All the cases reported were fatal. Four cases were found in hospital sick with the disease, and four cases were discovered when inspecting the passengers. I may here refer to the fact that the bill of health from the consul at Naples declared that 'there had been many cases of cholera at Naples and vicinity for the last five weeks. The exact number could not be ascertained. The mortality of those attacked is 70 per cent.' (Consular bill of health.)

The well passengers were removed the same day to Hoffman Island for observation, and the sick to Swinburne Island Hospital. The number of cases on board on arrival was eight; twenty cases have developed among the passengers since they have been under observation to this date; five of those removed from the vessel have died and three recovered. Of those that have developed while in quarantine, nine have died, four have recovered, five are convalescent, and the remaining two are now seriously ill. The disease has been very virulent and rapid in its fatality in a majority of the cases; in several instances patients that were well at inspection in the afternoon were nearly or quite pulseless within twelve hours. At this date there has been no development of cases among the immigrants for the past two days. The steamer was twice washed with scalding water from the boilers through the hose in every accessible part, and immediately after this washed in every part with a solution of corrosive sublimate, two parts to one thousand. The hatches had been closed and sealed and covered with tarpaulin before the passengers were taken on board, except three cabin-passengers, taken at Marseilles. All the immigrants were removed to Hoffman Island. Immediately subsequent to the washings with the solution of mercuric chloride, after breaking out the cargo to the bottom of the hold, one hundred pounds of sulphur was burned in the hold, the hatches of the spar-deck being closed for ten or twelve hours. The disinfection by the solution before mentioned was the next day repeated, every accessible portion of the vessel being washed with it by brooms or sponges, followed by the combustion of one hundred and fifty pounds of sulphur, the hatches being again closed until the following morning. Every textile fabric —carpets, mats, the dunnage and clothing of the crew—were immersed in boiling water for a considerable time by the introduction of steam through hose attached to the boilers. Finally, all exposed portions of the steamer, except the saloons, including the forecastle, were repainted. The steamer was retained in the lower bay fourteen days. The well passengers were removed to Hoffman Island for observation, and the sick to Swinburne Island Hospital the day of their arrival at quarantine. The cleansing and disinfection of the baggage of the immigrants commenced immediately thereafter. A large tank that can be securely closed, having a perforated pipe extending from the bottom to the under side of the lid, and connecting with a large boiler used for heating the buildings, is used in part for the disinfection. Two rooms 15 x 20 feet each, made as close as possible,

are used to disinfect by the combustion of sulphur. Each piece of baggage and every article of clothing have been subjected to sulphurous-acid gas thus produced for several hours, in the ratio of three pounds to each one thousand cubic feet of air-space. The disinfection by moist-steam heat has been at the same time constantly in progress —the clothing is subjected to this process for at least three hours. Barrels of a solution of bi-chloride of mercury of the strength before mentioned are placed in the closets and used to wash them after the dejecta of each person has been removed by the flush from the tanks above the hopper of the closet. Every day the floors of the large buildings, each 50 by about 150 feet, are washed with a solution of the same article. To-day the subjection of each and every article of baggage has been again commenced, and will be continued until all articles have been again disinfected by the means mentioned. For two days past no new cases have developed. It is well to state that the first cases on the 'Alesia' developed the ninth day after the steamer left Naples. It is as yet an open question whether the cases that have developed on Hoffman Island arose from infection contracted from the same source that gave rise to the deaths on board the steamer, or from sources that were transferred to Hoffman Island with the passengers. There is every reason to believe at this writing that the infection among the immigrants is destroyed, except, possibly, that its development may be exceptionally long delayed in cases which may occur."

Since the date of the foregoing communication, other cases of cholera have appeared among the quarantined immigrants.

Annual Reports of Local Boards of Health.

The blanks which will be forwarded in due time to the secretary or health officer of each local board of health will present the following list of questions and topics, upon which the local board can base its annual report to the State Board. The reports are to be made from the organization of the local board to the end of the year.

1. Give the name and address of each member of your board.

2. How many meetings have been held by the board since its organization?

3. Water supply. Please communicate information regarding its source and character.

4. Disposal of excreta. What are the methods generally employed?

5. Drainage and sewerage. If city or village, state whether there is a sewerage system and of what character, and what are the general methods employed for the disposal of house drainage in country places or isolated houses.

6. Nuisances. How many have been reported to your board? How many have been removed? Please report the facts in regard to any nuisances of unusual character, or which have given unusual trouble in respect to decisions regarding them, or in which there has been unusual difficulty in securing abatement.

7. Contagious diseases. How many cases of each of the following diseases have occurred during the year, and how many deaths from each: Small-pox; Diphtheria; Scarlet fever; Typhoid fever.

8. Are these diseases reported to the local board of health by the physicians in attendance in accordance with the law requiring such reports?

9. What diseases were more than usually prevalent during the year? (Please give your opinion as regards the cause of such prevalence.)

10. What diseases were less prevalent than usual?

11. What action has been taken by your board when cases of the contagious diseases have been reported to it?

12. Schools. State generally what is the condition of the school-houses in your town as regards heating, ventilation, lighting, drinking-water, and outhouses. Have any special cases come under your observation in which unhealthy conditions existed? Have contagious diseases entered any of the schools? If so, what action was taken?

13. Are there in your town or village any particularly unhealthy localities? If so, what appears to be the causes of such unhealthfulness?

14. What methods can you suggest for improving the sanitary condition of your town?

15. Accidents. Has sickness or death resulted from accidental causes; drowning, fires, and kerosene accidents? If any have occurred from the last cause, please report in full to this board.

16. Please communicate the facts regarding any cases of disease which appeared to have been caused by polluted water, cess-pool, or sewer-gas, defective ventilation, lead, arsenical, or other forms of poisoning.

17. Have any instances of food adulteration, or injurious effects from it, come to your knowledge?

18. Please communicate the facts regarding any cases of disease which were interesting from a sanitary point of view. (Unusual course of epidemic prevalence, unusual symptoms or want of certain symptoms, observations as regards period of incubation, communication of diseases by contagion, spread of contagious diseases by public funerals, long periods of vitality of infection, concurrent or consecutive prevalence of diseases, etc.)

19. Diseases of animals. Please report any cases of diseases of animals which have occurred, and any cases of relation, or apparent relation between such diseases and human diseases.

20. Has your board adopted any by-laws for your town? If so, please forward copies of all such to the office of the State Board.

21. Please give an account of the work which has been done by your board since its organization.

Peripneumonia and Cow's Milk.

A series of investigations (Lecuyer, Centr. fur Kinderk. May 16, 1887.) has led to the conclusion that the unboiled milk of cows suffering from lung-disease is liable to produce croupous pneumonia in human beings, the anatomical appearance of which is like that which occurs in cattle. The autopsies upon two children who had died under similar circumstances, and with clinical phenomena similar to those which are seen in lung-disease in cattle, showed thickening of the pleuræ, extensive adhesion of the costal to the pulmonary pleura, dilation of the lymph-space extending from the sub-pleural to the interlobular connective tissue, and infiltration of the interlobular connective tissue with bloody serum. At the time when the two children were taken sick an epidemic of lung-disease was prevailing among the cattle in their vicinity. This coincidence is important, and should excite pathological investigation in this direction.—*The Archives of Pediatrics.*

Ear Boxing.

Science publishes some valuable records collected by Dr. Samuel Sexton on the observed effect of boxing the ears. Dr. Sexton has fifty-one cases upon his records in which the ear has been injured by blows of the open hand or fist. The nature of the injuries varies considerably. One had inflammation of the ear, with suspicion of intra-cranial trouble, and a running of the ear for twelve years following a blow upon that organ. This patient subsequently died of brain

disease. In another case the ear became inflamed and the hearing very much impaired. In a third case the patient was slapped by his father upon the left ear, and immediate pain and deafness ensued, with a bloody discharge, from which he was three months in recovering.

The dangers to which Dr. Sexton calls attention are so grave that parents and all others should choose some other method of punishing their children than boxing the ears. It is not improbable that, if Dr. Sexton pursues his inquiries further, he will find other cases in which brain disease has followed this barbarous practice.

Public Danger from Questionable Forms of Sore Throat.

A young man, whose parents live in Brighton, died in Detroit a few weeks ago after a week's sickness. The attending physician called the disease at various times, "putrid sore throat," "gangrenous sore throat," and "ulcerative tonsillitis." He died of failure of the heart, a common mode of death in diphtheria. The remains were sent to Brighton, and on the casket was a certificate that he died of "heart-clot." As the boy was well known in Brighton, it was proposed that the high school go in a body to his funeral; but the principal of the school and the health officer of the village, suspecting that all was not right, vigorously objected to any children attending the funeral. About Aug. 1, the lady with whom the boy lived in Detroit, visited the boy's parents in Brighton, bringing his clothing that had been left with her. In ten days after her arrival, two children in the family were taken with a malignant form of diphtheria, one dying Aug. 23, and the other, when last heard from, being in great danger.

From the statement of the case there can be little question that the boy died in Detroit of diphtheria. The father says that if his children in Brighton had diphtheria, then his boy in Detroit had diphtheria, "because," he says, "it is the same thing." The members of the family in Detroit have since had sore throats.—*Medical Age.*

"If a man has contagious disease in his house and fails to give due notice thereof, or allows people to come into his house without sufficient warning, or in any avoidable way exposes the public to contagion on his own premises, he is liable to indictment at the common law." (Meeker vs. Van Rensselaer, 15 Wend., 397; State vs. Purse, 4 McCord, 472; People vs. Townsend, 3 Hill, N. Y., 479; Welch vs. Stowell, 2 Doug., Mich., 332; Moffett vs. Brewer, 1 Greene, Iowa, 348; Barclay vs. Commonwealth, 1 Casey, 503).

THE

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Sanitary Notes.

"Form 1" on which a report of a contagious disease has been made to the local board should be retained and kept on file in the office of the local board and not forwarded to this office.

To the executive officers of the local boards of health we would say that the first case of a contagious disease should be reported to the State Board on "Form 2" and subsequent reports during the prevalence of the disease may be made weekly on "Form 7."

During the past two weeks the reports to this office show that there has been a considerable increase in the number of towns in which scarlet fever has appeared. Prompt measures should be taken to restrict the infection to the first cases; for no matter how mild the affection may be, the contagion is capable of propagating itself when transmitted to another susceptible individual, and at any time may assume a more malignant form.

Fix in the mind and put in practice the provisions which the law makes for protecting the schools from the contagious diseases,—prompt notification of the local board by physicians and householders, notification of teachers by the local boards, exclusion of infected children and children from infected houses from the school, closure of the school by the teacher and immediate notification of health and school officers if infected persons are found in the school-room, disinfection of the school-room without delay if the suspicions of the teacher as regards the infection of the school-room appear to be wel founded.

In point of numbers at least the meeting of the International Hygienic Congress was a success, as it brought together nearly three thousand persons. Though largely consisting of the German speaking races, other nationalities were represented by many distinguished sanitarians. It was decided to hold the next congress in London in 1891.

At the last accounts the London scarlet fever epidemic was unabated, and over two thousand of the patients were treated in the hospitals. In other English towns also this disease shows an epidemic tendency.

Dr. E. O. Shakespeare believes that this country will have a visitation of cholera "if the present state of affairs continues."

It has been proved over and over again that nothing is so costly in all ways as disease, and nothing is so remunerative as the outlay which augments health, and in doing so, augments the amounts and value of the work done. [Parkes.]

When, in a town, a disease appears in regard to the nature of which the opinions of physicians differ, and there may be a suspicion that it is an epidemic or dangerously contagious disease, precautions should be taken as though it were known to be the more serious disease which is under consideration. The neglect on the part of physicians and health authorities to follow this rule has been the cause of disaster to many a town.

BOSTON MEDICAL LIBRARY ASSN. AUG 15 1889

Lately the local board of one of our towns reported that a difference of opinion existed as to whether a certain case was one of mild scarlet fever or otherwise. The child had been permitted to attend school, but when the teacher learned that the case had been called scarlet fever, in accordance with the requirement of the law, she stopped her school and notified the board of health to disinfect the room, which was done. The action of this teacher and of this board is highly commendable.

Examination of Drinking-Water.

As a beginning of this work an analysis has been made of about fifty samples of waters which have been sent to this office by local boards of health and by individuals, and as the number increases the comparative study of the results becomes constantly more interesting.

We are asked quite frequently to make analyses of waters where the object of the correspondents is plainly a mercenary one, more frequently the determination of the medicinal value of a supposed mineral water. To all such applications as these we must repeat that the work done here is strictly confined to the analysis of water for sanitary

purposes, that is, to the determining of the number of parts per 100,000 which it contains of solids, hardness, chlorine, free and organic ammonia, etc., supplemented with a microscopical examination. This would not tell such applicants what they want to know, neither would the chemical analysis which they wish be of much use in connection with the work which we do. All applicants of this kind we have to refer to the several competent chemists that we have in the State.

Portland Board of Health.

The Board of Health of Portland are having an opportunity to try the efficacy of preventive measures in cases of contagious diseases, there having been reported in the month of October forty-four cases of diphtheria, fourteen of scarlet fever and eighteen of typhoid fever.

Through the cordial co-operation of all the physicians, early report is made to the Board of any case of contagious disease. The Secretary immediately makes out a report of the case for information of the schools, one on a card especially intended for the Supt. of Schools, the other on State blank form 3, that teachers may know the law relating to the case; these cards are handed to the truant officer, who calls at the Secretary's office twice a day for that purpose. The Health Inspector is informed of the case and he at once goes to the house where the case is reported and puts at front and rear entrances a card stating that diphtheria, or scarlet fever, as the case may be, exists in said house. He also leaves with the family the State circular relating to the particular disease which has been reported, and form 38, relating to disinfectants and their use. Should the case be one of peculiar malignancy or noticeable from any other cause, the Board is kept informed of its progress by the Inspector or physician and precautionary measures taken accordingly.

At the termination of the case the Board is informed what measures of disinfection have been taken, and in cases where parties have been unable to perform this duty, the Board has furnished materials and a proper person to do the work.

No objection is made by householders to the affixing of the card. On the contrary they express themselves glad to be relieved of the responsibility of giving notice of the disease.

The Crown Prince and the Hygienic Congress.

At the opening of the recent International Hygienic Congress at Vienna, Crown Prince Rudolph, in his address of welcome, declared that "man is the most precious capital of the State and of society in

general. Every individual life represents a certain value. To preserve this as intact as possible to its furthest limit is not only a command of humanity, but also the duty of every community in its own interest. Whatever means may be at our disposal to protect our own individual welfare, left to ourselves we are powerless in face of the general injurious influences with which nature surrounds us on all sides. Here only common action can be of any avail, and this great task is undertaken by hygiene, supported by demography. It is hygiene based on a scientific basis which enables legislation to obtain practical results in the extensive field of health administration. Looking over the papers which will be read at this Congress, we recognize with astonishment that the science of which you, gentlemen, are such devoted disciples comprises every phase of social life—the dwelling-house and the school, production and war, the city and the village, trade and industry. The truly international importance of hygiene is also proved by the fact that so many illustrious representatives of all nations and countries are taking part in to-day's proceedings.

I feel the greatest satisfaction, gentlemen, in welcoming you to this town, which is the centre of active scientific work and earnest research. In the name of His Imperial and Royal Apostolic Majesty, my most gracious master, I hereby declare the Sixth International Congress for Hygiene and Demography open."

Two Ways of Thinking.

In a recent issue, *The Sanitary Engineer* says: "The State Board of Health of Maine, to judge from its second report for the year 1886, just issued, seems to think the matter of vital statistics hardly worth attending to, and has devoted its energies to the securing the passage of a law, which was approved last March, 'to establish local boards of health and to protect the people of this State from contagious disease.'" And, "When the people of Maine adopt means for knowing promptly the localities in which people are dying too fast, they can with profit begin preventive work; and until they have this knowledge, it will only be the terror produced by a well developed epidemic that will induce them to execute the law above referred to."

We beg our respected contemporary to bear in mind that along with ideas of the natural sequence of things in attempts at sanitary legislation, it is well to have regard for the expediency, the practicability, of things. While we will not yield the palm to any one in our apprecia-

tion of the value of a good system of state registration of vital statistics, and of the need of such in the State of Maine, we think that some people make themselves exceedingly silly when they advise all sanitary progress to halt until a proper system of registration is ready to record its results.

If anything is known in sanitary science it is that people are dying too fast in *every* locality, and that, in the progress of epidemics, many people often suffer from the disease and seed down the community with infection before a single death has occurred as a contribution to vital statistics. To have an order of things which will bring to the office of the State Board prompt intimation of the beginnings of epidemics, and an independent authority in every town whose special duty is to prevent these beginnings from assuming the magnitude of an epidemic, seemed a consummation devoutly to be wished in this State, vital statistics or no vital statistics.

So, working to this end, and in the direction of the all absorbing one which is in the eye of the critic, a bill was recommended to the Legislature which makes it obligatory upon every town and city in the State to appoint and constantly keep a local board of health, consisting of three persons, which enlarges the powers of usefulness of the local boards and more clearly defines their duties, and which provides for many contingencies in connection with the infectious diseases, and for the doing of many things which sanitarians generally are agreed should be done in the work of restricting contagion. All of this is work of no value in the eyes of the scribe of the *Sanitary Engineer*, and he tells his readers nothing of it.

That we have the people behind our back in our work of popularizing sanitary knowledge we think is shown by the fact that this bill became a law without an adverse vote in either branch of the Legislature, and another straw pointing in the same direction is the fact that a request for an increase in the yearly appropriation of the Board and to have the number of copies of the annual report doubled likewise received no opposition.

A few of the features of the new law which we would commend to the attention of fair-minded critics are the provisions for immediately reporting cases of contagious diseases to the local board, for prompt notification of the State Board, for isolating cases of the infectious diseases and indicating to the public the sources of danger by placarding the doors of infected houses, for disinfecting houses, vehicles, etc., when deemed necessary, and for excluding infection from the schools.

And so far what has been accomplished under the new law? A local board has been appointed in all but about a dozen of the towns in the State; every day there are received by the State Board reports of the contagious diseases which occur under the jurisdiction of the local boards, and these outbreaks generally have been met with much good judgment and the application of correct preventive measures; and one of these measures, which in some places outside of our State has worked so beneficently, the placarding of the entrances of infected premises, has gone into use quite generally, with no objection from any quarter as far as is known.

In all this there cannot, perhaps, be found a single original idea, excepting in Secs. 19 and 20, which provide for the protection of the schools, but the act is made up from legislation which has been already tried and, as *The Sanitary Engineer* ought to know, has been found to be wise and useful.

Does our critic know of any other state board which can show a better record for two and a half years' work? In the mean time we should feel grateful for any other words which might be helpful in getting a much needed system of vital statistics in our State.

The Cholera Outlook.

After the arrival of the cholera infected Alesia at the port of New York, the tone generally of the sanitary and medical press was one of confidence in the ability of the health authorities of that port to restrict the disease to the quarantine ground, but when another steamer of the same line, the Britannia, arrived with cholera on board, and still a third, the Independente, from the same infected ports, whose passengers and baggage were permitted to go into the interior without warning to the local health officers of the towns to which they were destined, the feeling of security has very much diminished and the tone of these journals is not so assuring. With our national sanitary defences as insignificant as are our naval defences, the prospect does not look very encouraging if this kind of thing goes on.

As far as our own State is concerned, the rapidly approaching frosts will interpose an efficient barrier between this danger and us for a few months, but there is a possibility that the prediction of a contemporary may be fulfilled, that "next year will put to the test, as has never been done in our country, what our modern sanitary science can do to keep out diseases of a malignant character." In years past when cholera has swept this country, Maine has escaped with a few

local outbreaks, but it must be remembered that the conditions now are very different from what they were forty years ago. Through lines of travel bind us closely with the rest of the world, and if the test should come and sanitation should be defeated in the struggle, the multitudes of refugees to our State could not let us hope to go entirely free. While thus being cognizant of undesirable possibilities, there is no cause for panic, neither will there be with a much nearer approach of the disease to our boundaries if we are equipped and ready to do our duty. With no local health organization, or an unintelligent one, and with such municipal slackness as it delights to find, no disease more terrible can be introduced, but with an efficient health organization and those conditions which a proper regard for the public health demands at all times, a wide extension of cholera is impossible. It is now generally accepted that cholera is due to a micro-organism, the *spirillum cholerœ asiaticœ*, which is generated in the intestinal canal of a cholera victim and is excreted in the choleraic discharges. The disease is transmitted to other cases by being received into the digestive canal of other persons. The prevention of cholera therefore resolves itself into keeping people from swallowing these discharges. This might seem a simple matter, but it requires a more intelligent treatment of the questions of water supply and of the disposal of excreta than they get in many of our towns and villages.

Winter Dangers.

As everybody knows, each of the four seasons of the year brings its peculiar dangers and its increased tendency to particular diseases. The dangers which threaten our health in winter come mostly from exposure to injurious degrees of temperature or from those unhygienic disturbances which we bring about with our inconsiderate methods of protecting ourselves from the cold. The first kind of dangers threatens particularly two classes of people, the one whose poverty makes the teaching of lessons regarding the hygiene of dress all but useless, the other whose devotion to fashion makes such lessons fall upon ground none the less hopeless. As belonging to the dangers which come from the unhealthy conditions which we bring about in our attempts to keep comfortable, may be mentioned an excessive temperature of our rooms. After our winter fires are started, it is not so rare to find living rooms, school-rooms, offices, with the temperature up in the eighties, and yet in the summer when the mercury crawls upward to this point we begin to complain of the excessive heat, and

thin clothing, fans and ice-bills are in order. It requires no stretch of imagination to picture bad or fatal results from sudden transitions out of such a super-heated air into the chilly external atmosphere. Another disturbance which we produce in our artificially heated atmosphere is a hygrometric one, and the higher the thermometer points the greater is the disturbance of this equilibrium. While we increase the temperature of our rooms in an arithmetical ratio the capacity of the air for holding moisture is increased in a geometrical ratio; consequently we find the air of the kitchen with its steaming teakettle more agreeable than that of the heated sitting-room with its want of provision for increased moisture with increased temperature.

Another change in our house atmosphere which our winter fires produce is this. The artificially heated house, with its system of stoves, grates or furnaces and flues, becomes an exhaust pump,—a cupping glass set down upon the bit of ground which it occupies, and, with the usual arrangements, it exerts quite a powerful suction force upon the ground-air. This ground-air fills the interstices of all soils which are not filled with water, to the extent of from 20 to 50 per cent. of its volume and even in clean soils contains more carbonic acid and other gaseous ingredients than is good to have in an atmosphere for breathing purposes. How then shall we regard the air sucked from the pores of the earth in the immediate vicinity of an average habitation with its accessary vaults, cesspools, drains, and surface-polluted soil? Not with indifference assuredly, when we know the sanitary meaning of it.

But of greater significance perhaps than all these causes of winter diseases, and intimately related to them, is the want of ventilation. Homes, places of business, schools and churches, all alike, as a general thing, have been built with a complete ignoring of the fact that stagnant and rebreathed air is not compatible with health. The breathing of this kind of air, in the first place, is a potent cause of general debility, and the system thus enfeebled is less able to withstand the more essential causes of the winter diseases whether coming in the shape of wintry blasts or the infection of contagious diseases. In the second place, the stagnant air of unventilated rooms is more likely to contain and harbor the germs of the infectious diseases, and thereby, probably, results the greater prevalence of certain of these diseases after the advent of cold weather.

Thus it will be seen that while our winters work an antisepsis on a grand scale and protect us from certain dangers which threaten us

from every stagnant pool or collection of surface filth, by sealing them up, there are many dangers largely of our own making, and therefore to a considerable extent avoidable, which threaten us in winter. Of these we shall occasionally speak further and also show what others say about them.

Typhoid Fever by Inhalation.

It is generally admitted that the infection of typhoid fever is received into the system in the great majority of cases through the medium of infected drink or food, but it is conceded that in a minority of typhoid cases the infection is received by the inhalation of air-borne germs.

The following cases reported in France are thought to illustrate the latter mode of infection:

A patient suffering with typhoid fever stayed at a hotel in Eaux-Bonnes. In four weeks she recovered, but the three daughters of the hotel-keeper were attacked. Eaux-Bonnes is said to have a bountiful supply of excellent spring water, and there was no other case of typhoid in town. The discharges of the stranger were thrown, in an undisinfected state, into the water-closet, the door of which communicated with the room in which the landlord's daughters slept, at a distance of only three feet. It seems reasonable in this instance to eliminate the drinking-water from the factors in causing these three cases, and to charge the infection to the neglect of disinfection of the excreta.

How Infection is Spread.

The following from *The Sanitary Record* may be read with as much profit here as in England.

Infectious diseases, especially scarlet fever and measles, are so constantly spread through culpable carelessness and obstinacy on the part of the poor country folk, that nothing but good can result from health officers reiterating their advice in a simple way year by year in their annual reports. This is the course adopted by Mr. Adams in reporting on Bedminister. He recognizes the many difficulties that the poor have to contend with in dealing with sickness; but he points out that every medical man, who has been especially occupied amongst the poor, knows that whilst in one cottage there is cleanliness, sobriety, thrift, and an intelligent willingness to carry out the doctor's directions, in another, dirt, idleness, drink and stupidity reign supreme;

and that, when disease crosses the threshold of both, the odds are greatly against those who prefer to live more like swine than human beings.

The evil would be less if the results of inattention to directions could be limited to the careless and unwise people.

But, with a lofty disregard of the Public Health Act, women will go from infected houses to the village shop, or to gossip with their neighbors; they will go to church or chapel, and will send their children to school or to play with other children when infection still exists; they will, when the inspector comes to disinfect, cunningly poke a child's garment, highly charged with contagion, into some secret hole or corner because "it shall not be destroyed;" and after the house has been swept and garnished, out will come the precious rag, capable of infecting a whole parish, and will probably constitute a portion of the "go-to-meeting" or "go-to-school" finery. This is the explanation of many of the mysterious secondary or tertiary outbreaks which occur. It is not necessary to say that in the educated and wealthy classes the sanitary rules laid down by the doctor are, as a rule, properly carried out; but Mr. Adams has met with instances where the bed-and-body-linen from large houses has been sent to the wash without being thoroughly, if at all, disinfected, and, as a consequence, disease, and in some cases death, has resulted.

Typhoid Fever Associated with Disease of Cows.

In Carlisle, Eng., where for many years there had been a comparative immunity from typhoid fever, an outbreak sprang up suddenly among the users of the milk from a certain dairy. An investigation made by the Medical Officer of Health showed that typhoid fever had been present in the family of the dairyman. The survey of the premises made it probable that the milk had received its infection by being stored in close proximity to the inhabited rooms, and where it was subjected to the emanations from the privy where the typhoid evacuations were emptied, and from the midden in which the manure from the cow was stored. In accordance with the recommendation of the Medical Officer of Health the family and dairy were moved to other separate quarters, but in spite of these precautions the cases of typhoid fever among the customers continued, and to supplement his insufficient causative factors an enquiry was made as to whether there had been any antecedent or concomitant sickness among the cows. It was learned that there had been some trouble in the herd,

for which the services of a veterinary surgeon had been called. From the veterinary attendant it was learned that the cows for some time had been affected with an infective fever. "The pulse of the affected animals was increased in volume and varied from sixty to eighty beats a minute, the normal pulse of the ox being from forty to forty-five per minute. The nose was hot and dry, and the horns were alternately hot and cold. There was very marked lumbar tenderness, which was very characteristic in all the sick animals. Constipation was generally present but not serious. So far as he could recollect, there were only two cases of purging. With regard to the source of the typhoid fever at the dairy, there was no history of imported infection and no antecedent case of typhoid in the immediate neighborhood could be traced."

The author seeks to strengthen the position which he takes by referring to some late observations of a physician in a South African town, from which the conclusion was drawn that there was a connection between the typhoid fever as observed in rural places in that country and a *specific enteritis* among your calves.

In view of the general futility of attempts at the inoculation of the typhoid virus upon the lower animals, the value of the observations of the health officer of Carlisle should be weighed carefully. As the infective disease of the cows extended over several years and the farmer was in the habit of selling the animals to the butcher when they became unprofitable as milkers, there might be a chance for the suspicion of bovine tuberculosis.

Queries and Answers.

Bromo-Chloralum. I have been using bromo-chloralum, but would like to know whether it is as good as some other disinfectants.

DISINFECTOR.

ANS. The experiments of the Committee on Disinfectants of the American Public Health Association showed Bromo-Chloralum to be active when in a solution of the strength of 25 per cent., and to fail when only 20 per cent. As regards this and some other proprietary disinfectants the Committee says:

"We have nothing to say against the use of any of the agents in our lists as antiseptics or as deodorizers. But the exaggerated claims made in relation to the germicide or disinfectant power of certain of these agents may do immense harm."

Neither this nor any other proprietary disinfectant is so efficient or so cheap as chloride of lime, corrosive sublimate, freshly prepared Labarraque's solution, or boiling; and when, to disinfect a vault, a house, or the bed-and-body-clothing of a contagious disease patient, the disinfectant solution must be used by the gallon, the question of economy is an important one. One gallon of 25 per cent. solution of Bromo-Chloralum will cost $1.00; one gallon solution of chloride of lime (Sol. A.),* or corrosive sublimate (Sol. B.)* will cost from two to ten cents.

How much of Isolation for Typhoid Cases? I wish you would tell me to what extent you think it necessary to have local quarantine or isolation carried out with reference to cases of typhoid fever.

SECRETARY.

ANS. Typhoid fever is rarely, and probably never, conveyed by contagion directly from one person to another as small-pox, scarlet fever and diphtheria often are. The infection of typhoid fever is not exhaled from the breath or the skin, as in these other diseases, but is confined to the discharges from the patient.

The most important preventive measures are cleanliness of the patient, and of the sick room, and the thorough disinfection of the discharges and the subsequent proper disposal of them so they may be harmless if the disinfection should happen not to be complete. When the former measure is provided for, and the latter is not, there may be much more danger in the well or privy than in the sick room itself. The patient ceases to be a source of danger to others as soon as he has recovered. The contagion is not transmissible in clothing unless the clothing has been soiled by the dejections of the patient. Therefore, as compared with the three other diseases which have been mentioned, the quarantine measures need not be so strict.

Typhoid Fever and Admission to School. We want to know if there is any danger from infection in typhoid fever if members of the family continue going to school. M. R.

ANS. The answer to the foregoing question is perhaps all that this requires. Children coming to school from houses where there are cases of typhoid fever are not a source of danger to their schoolmates, provided they themselves are well.

NOTE.—The package of last month's *Inspector* for several towns was by an oversight sent very late.

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*See Circular 38—Disinfectants, issued by the State Board of Health of Maine.

THE

SANITARY INSPECTOR.

VOL. 1, NO. 6. DECEMBER, 1887. 25 CENTS A YEAR.

Sanitary Notes.

If the secretaries of the local boards of health, when they have occasion to send in weekly reports of contagious diseases, would send them, when they can, the last of each week, instead of the first of the following week, it would enable this office to have them all included in the abstract of the contagious diseases which is given to the press for Monday morning.

This is the first season in which a systematic notification of the infectious diseases has been carried out in this State, so we have no standard of comparison, but, as nearly as can be guessed, this should pass for a healthy year. Many outbreaks of the contagious diseases have been reported to this office,—many more than ever before, because formerly the reporting was the exception rather than the rule, —but there have been fewer extensive and fatal epidemics.

At the recent meeting of the American Public Health Association the Committee on Disinfectants recommended six ounces of chloride of lime to the gallon, instead of four ounces as before, for a popular disinfecting solution.

There is now a serious prevalence of small-pox in Florence and Milan, appearing, as the Italian journals state, principally among the young who have never been vaccinated and among those of advanced age who have not had the protection of recent vaccination.

Typhoid fever is so prevalent in Albany, N. Y., that the mayor has issued a proclamation urging its citizens to boil all river water before using it.

The report comes from Philadelphia of a boy, eleven years of age, who died from tobacco-narcosis. He had been smoking half a dozen or more cigarettes daily for ten months.

Speaking of the importance of pure air, a late writer said: Perhaps the greatest speech ever delivered in the House of Commons was by Sir Isaac Newton. He never made but one, but this deserves to go thundering down the ages, for it involves the welfare of the human race more than the fervid orations of Burke and Fox. Sir Isaac Newton arose from his seat and asked a man in the gallery to open a window.

The information comes in a recent German newspaper that the bacillus of cancer has been discovered by Dr. Schewelin of Berlin.

Mr. Gladstone ascribes his splendid health and longevity to having learned one simple physiological lesson, viz., to make twenty-five bites at every bit of meat.

On the 1st day of this month a case of small-pox in Gardiner was reported to this office. The person affected was an operative in the paper mill and it is thought that she received the infection from the rags.

Quite recently there have been many communications to the medical journals headed, "Is Cancer Contagious?" and a variety of cases have been narrated as remarkable coincidences, or as examples of contagion.

Diphtheria quite often proves its contagiousness by attacking the medical attendant. Two cases of this kind have been recently reported, the one in an English medical journal, and the other in one published in this country about the same date. In the one case it was said that the physician was lying seriously ill, having caught the infection while attending a patient. In the American case it was stated that the physician performed intubation upon two cases of diphtheritic croup and was taken down with a malignant form of diphtheria, from which he died.

Carbolic Acid Reinforced.

At the International Hygenic Congress several of the leading men recommended strongly the addition of hydrochloric or tartaric acid in the proportion of from one-half to one per cent to solutions of carbolic acid. Reference was made to the researches of Laplace, which demonstrate that the disinfective power of carbolic acid is thereby considerably increased. Formerly we added acetic or other acid to increase the solubility of carbolic acid without knowing that its germicidal power was thus augmented.

Sewage Drinking.

The *Engineering and Building Record* asks "Do the inhabitants of Newark and of Jersey City sometimes drink sewage?" and in answering that question says, if a few cholera cases should occur in Patterson or Passaic and the discharges from them gain access to the river, the evidence furnished by the results will probably be quite efficient to convince even the most conservative citizens of Newark and Jersey City, not only that they are drinking dilute sewage, but that it is, in the long run, a very unhealthy and expensive beverage.

Hydrophobia and Pasteur.

Dr. Dulles has made an interesting report to the Medical Society of the State of Pennsylvania on the present status of the Pasteurian inoculation against hydrophobia, which he closes with the words, "this method ought to be rejected and condemned, in the interest of humanity as well as of science."

Tetanus an Infectious Disease.

Two years ago or less Nicolayer published the results of his experiments with a certain bacillus which he found in earth, which could be cultivated artificially, and which, injected subcutaneously into mice, rabbits, and guinea-pigs, produced tetanus. This disease, so produced, was transmissible from the sick animal to the well by inoculation. Rosenbach, another German author, has also made a contribution in the same direction. Dr. Shakespeare, pathologist to the Philadelphia Hospital, read a paper upon this subject at the late session of the International Medical Congress and related a series of experiments consisting in inoculation of rabbits with material obtained from the medulla and spinal cord of a horse which had died of lock-jaw. He concludes from these researches that traumatic tetanus of the horse and mule is sometimes, if not always, an infectious disease, transmissible to other animals, and therefore possibly to man.

More Dangerous than Cholera and Yellow Fever.

Dr. Sternberg, President of the American Public Health Association, said, in his annual address at the late meeting in Memphis, "The exotic pestilential diseases to which I have referred are the levers which move corporations to make necessary sanitary improvements. But for sanitarians, aside from their effect in this way, they are of secondary importance. The number of victims which they claim is

a small matter compared with the number who succumb to certain indigenous, or naturalized infectious diseases, which are equally subject to control by well known sanitary measures."

On the same occasion he reviewed the need of a central or national sanitary authority and thought the public health interests of the country were entitled to the same consideration from the national government that is accorded to the educational interests, the agricultural interests, etc. The plan that he would recommend would be a bureau of public health, with a commissioner at its head and with the necessary secretaries and clerical force and specialists to make it efficient, all under the protection of one of the cabinet officers.

The Typhoid Bacillus.

The bacillus described by Eberth in 1880 appears to be taking its place in medical and sanitary literature as the essential cause of typhoid fever and, during the last year or two, much work, mostly in Germany, has been done to determine its etiological and biological position.

Dr. Sternberg says that there is very little doubt that this organism is the cause of typhoid fever, although no satisfactory proof by inoculation in the lower animals has as yet been found.

C. Seitz found in typhoid dejections eight times in nineteen cases the Eberth bacillus, and a few times in the urine. His inoculation experiments were fruitless. He, however, does not doubt that the bacillus in question is the real cause of typhoid fever.

E. Fränkel and Simmonds did not find the bacillus in the blood, but in twenty-five out of twenty-nine cases found it in the internal organs, more constantly in the spleen. In their inoculation and inhalation experiments with the pure cultures on animals, positive results were not reached, though some of the animals died after severe symptoms, particularly diarrhœa, and the post-mortem revealed pathological changes similar to those accompanying typhoid fever in man. From the spleen of these animals the bacillus was recovered and recultivated.

Neuhaus found the bacillus, nine times out of fifteen, in the blood from the rose-spots of typhoid fever.

By Meisel the bacillus was found nineteen times in twenty in the blood from the finger.

A. Fränkel found in animals inoculated with pure cultures a swelling of the spleen and of Peyers patches and the bacillus in the blood.

Beumer and Peiper found in similar experiments on mice, rabbits and guinea-pigs that the bacillus when injected into the veins or peritoneal cavity rapidly perishes and disappears.

Suotinin gives similar testimony and claims that the results which follow the injection of pure cultures are not due to infection but to a ptomaine intoxication.

Typhoid Bacillus in Water and Earth.

The search for the bacillus of typhoid fever in water which has been suspected as being the medium for transmitting that disease, or in the earth of localities which are suspected of being infected with typhoid contagion, has only a few times been rewarded by the finding of the bacillus, or its supposed finding.

In 1885 during an outbreak of typhoid fever in the Marine barracks at Copenhagen, Tryde claimed that he found a bacillus in the earth beneath the floor and by means of cultures in potato and gelatine was enabled to identify it as the bacillus of Eberth.

In early autumn of 1886 an outbreak of typhoid fever occurred in Pierrefonds, France, in which twenty persons in three adjacent houses were attacked. The water was obtained from two wells situated respectively twenty-five and sixty feet from an uncemented privy vault from which excremental matter was washed during heavy rains. A biological examination of the water from these wells, made by Chantenesse and Vidal, enabled them to identify the typhoid bacillus in that of the well the most distant from the vault, but not in that of the other.

But more satisfactory is the testimony of Mörs, who investigated the water on the premises where there were five cases of typhoid fever, and not only found a bacillus which under the microscope was similar to Eberth's but proved itself to be the same by its peculiar growth on gelatine and potato.

Recently quite a number of times the typhoid bacillus has been reported to have been found in drinking water in connection with outbreaks of typhoid fever.

The Walls of Rooms as Holders of Contagion.

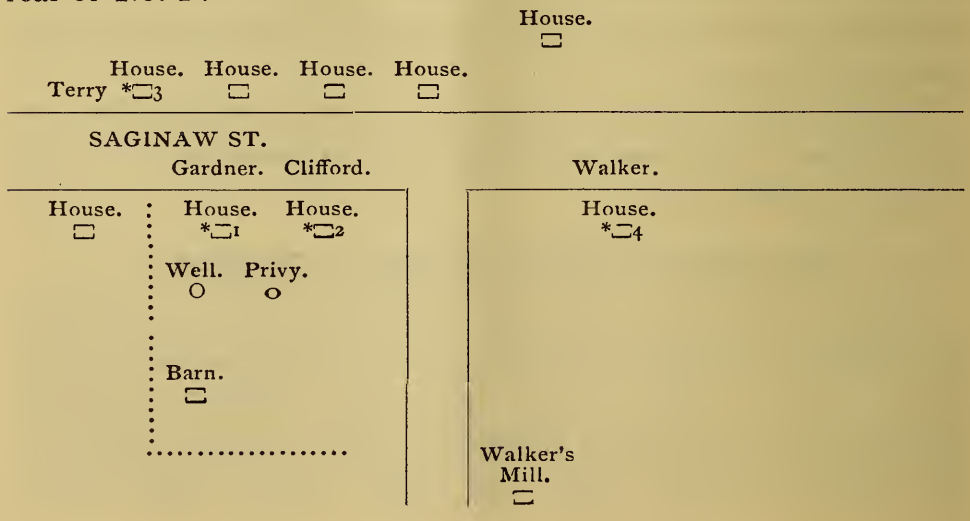
In the *Zeitschrift fur Hygiene* for August Dr. Esmarch, Assistant in the Hygienic Institute at Berlin, presented a method of cleansing walls of bacteria, which, at first, seemed like a travesty on disinfection methods, but it was not intended as such. It was nothing less than rubbing down the walls with bread. To the reader who is

acquainted with the consistency of some of their forms of rye bread, and with the fact that the people there have been in the habit of rubbing down papered and other walls as an effective and harmless way of cleansing and renovating their surfaces, the use of this kind of sponge for dry rubbing may not seem so strange. We do not mention this for the purpose of "booming" the importation of "schwartz brod" but of speaking of some of the author's preliminary experiments.

He found that by rubbing a given extent of wall surface with a sterilized moist bit of sponge he obtained different numbers of germs according to the character of the surface and its situation. For instance, rubbing with the first sponge, from the walls of animal stalls, he found 6000 or more; in the laboratory, on plastered wall, 85, on the wooden door, 28; in a dwelling house from 5 to 153. In another house the number was 14 on old wall paper, and 5 on paper which had been hung three months. On the ceiling and upper parts of the walls there were found a much smaller number than lower down. From the results which he got, Dr. Esmarch estimated that on the walls of a dwelling room of ordinary size there are about 979,200 germs, which he is sure is too low instead of too high a figure. His experiments show that the germs are attached quite loosely to the walls, and the readiness with which they may be removed or blown into the air again emphasizes the necessity of efficient disinfection when pathogenic germs are thought to be present.

How Typhoid Fever is Spread.

The following is a brief report of typhoid fever cases occurring in the southern part of our town. Houses marked are the ones in which cases occurred. Nos. 1, 2, 3 and 4, traceable to water from well in rear of No. 1:



About September 1st, 1887, Myron Gardner, railroad employé, came from the South sick with fever, to his father's home, No. 1 on diagram. His case was supposed to be malarial.

No care was exercised with stools in the way of disinfection, but they were thrown into privy vault in rear of house, and in close proximity to well. Wash water was thrown on the surface of the ground, which was very dry at the time. About the seventh or eighth of September, a copious rain fell and soaked a sandy soil; and on the 14th, William Gardner and wife, father and mother of Myron, and E. D. Gardner, a brother (who was a student in my office and who boarded at home,) were attacked with fever. On this day I got home from Washington, and found four of them down with a severe type of typhoid fever; and in two weeks Myron's wife and child were attacked. Also a child across the street at Terry's, who had used water from the Gardner well. About the same time, three cases in the Clifford house south of Gardner's, who also used water from the Gardner well. None of the people from either of these houses were in the Gardner house. In the Walker house, still further south, one case has occurred, and I was at a loss to account for this case till a few days ago, when the young man said that at the mill where he was working they had used the Gardner water for a few days, owing to disarrangement of the pump at the mill. Two others of the mill hands—Anderson and Lester—who used the same water, were attacked about the same time. Lester is now convalescent. Anderson is dead, as also the child at Terry's. When I took charge of the cases, I ordered the discontinuance of the water from the Gardner well, the disinfection of the stools, and no new cases are now reported. People who assisted to take care of the Gardners and other families, and who used water from other sources, have not been attacked. Clearly, Myron Gardner brought the fever home, the well became infected after the first rain, from slops and privy, and the other cases got their seed from the water.—*H. McColl, M. D.*

The foregoing instructive account of the way typhoid fever was spread in one instance has recently been sent out in the form of a circular, by Dr. Baker, Secretary of the State Board of Health of Michigan, "in the hope," as he says, "that it may lead others to trace the spread of this important disease, and, what is of greater importance, act intelligently for the prevention and restriction of the disease as Dr. McColl did in this instance."

Tuberculosis, Human and Bovine.

In noticing one of the papers in the last report of this Board, the London *Lancet* makes the following remarks on tuberculosis:

Dr. A. G. Young, Secretary of the Board of Health for the State of Maine, has prepared a report which is of considerable importance, as summarising the information which is available as to bovine tuberculosis and its relation to tubercle in man. He regards the etiological unity of animal and human tuberculosis as established, and appears inclined to adopt the views of Johne, to the effect that we can no longer doubt the possibility of the transmission of tuberculosis from animals to man through the consumption of flesh and milk of animals thus diseased. This is a subject which calls for even more extended observation than it has received; but in the meantime, it is, at least, advisable not to use, for human food, the products of animals suffering from tuberculosis. If there is substantial danger, it would appear to attach much more to milk than to the flesh of the implicated animals; for, though it cannot be asserted that the interior of ordinary joints is, during the process of cooking, raised to a temperature always sufficient to destroy the tubercle bacillus, yet the cooking of meat does tend materially to reduce the danger. If it were possible to induce people only to consume milk after it has been boiled or otherwise cooked, the danger with regard to that article of diet would be reduced to a minimum. Tuberculosis is by no means an uncommon disease in cows, and it has hitherto been felt that the condemnation of the meat of such animals must, in the interests of cheap food supplies, be limited to those instances where the disease is extensive in amount or in an advanced stage. With regard to milk, we must largely trust to the inspection of cowhouses and dairies, which has now been inaugurated in this country, and which will, we hope, before long, eliminate from amongst those cows which supply milk for human consumption, any that are obviously suffering from tuberculosis.

School Hygiene.

The State Board of Health of New York recommends that the following requirements be embodied in a law, as essential to the sanitary welfare of the school-children of the State: (a) Building should rest on a good, dry foundation, and be constructed to insure the comfort of children during inclement weather; (b) Class-rooms should be arranged so as to admit light from left side and back of pupils, and the area of windows should be one-fourth of floor-space; (c) Not less

than 250 cubic feet of air-space should be allowed per pupil and provision for changing air should be made, so as to secure each pupil not less than thirty cubic feet of fresh air per minute. (d) The temperature of the school-rooms should in winter be maintained at a range not to exceed from 68° F. to 70° F. (e) Closets should be provided for each sex, entirely separate from each other and having entirely separate means of access. When situated outside the building they should be about fifty feet distant, and should be connected with it by a covered walk. Privy vaults should be utterly abolished. Moveable boxes or buckets should be placed under the seats, and earth or ashes provided as a deodorant. Buckets should be cleaned out at least once a week. (f) In addition to his other legal powers over schools, the Superintendent of Public Instruction should have authority to oblige school trustees to make improvements or repairs in school buildings for sanitary purposes, whenever the local board of health considers such necessary and their judgment is supported by that of the State Board of Health.

Practical Usefulness of Bacteriology.

An illustration of the practical usefulness of bacteriology was furnished recently in this city. An Italian steamer arrived loaded with immigrants. There had been no cholera on board, but, as the vessel reached this port, a suspicious case of diarrhœa occurred in a child. The symptoms were not perfectly typical of cholera. Some of the dejections were taken, and sterilized tubes were inoculated and taken to the Carnegie Laboratory in this city. It would take four days to develop the cultures, and the question arose whether the steamer should be delayed for that period of time. It was finally decided to do so. The cultures developed in the way characteristic of Asiatic cholera, and the diagnosis was made. Subsequently other cases of cholera appeared and the culture-diagnosis was abundantly confirmed. But no more striking example of the utility of scientific studies could be furnished than the one referred to.—*Medical Record.*

Well Water of Cities.

A correspondent of *The Sanitarian*, complaining of the bad quality of the well water in Newport, R. I., to which many of the inhabitants cling with more devotion than prudence, says: "Old residents say, 'These wells have been used for generations by healthy people—they were good enough for our fathers, why not for us?' They ignore the

fact that, besides the enormous increase of population, permanent and transient, the ground is in a less and less suitable condition for a pure water supply. Indeed, it is in many cases absolutely foul. The argument of these people reminds us of the guest at a hotel who asked the landlord for a clean roller-towel in the wash-room. The astonished and angry host regarded him for a moment with pity and contempt, and answered, 'Why do you complain? Five hundred men have wiped their faces and hands on this towel the past two or three days, and you are the first to complain. Do you consider yourself better than others?' The water-supply of Newport is indeed a serious and constant menace to health, both for ourselves and our little ones, and there is no doubt that its unwholesome reputation has gone abroad, and is preventing many from coming here this summer.

For invalid children and adults the use of city water is a positive danger. It is not wise to say that 'people will come to Newport whether the water is good or not.' Water is a most important supply, and pure, wholesome water is undoubtedly due to our summer residents, and to all who live in this beautiful and otherwise healthy town.''

The American Physique.

A correspondent in *Science* tells how he called the dealers in ready made clothing to help him solve the vexed question of whether the white man is deteriorating in size and weight on this continent. He sent letters to two clothiers in Boston who have long been in the business, one in Chicago, one in New York, one in Baltimore, one in Detroit, one in Texas, and one in Montreal. The information received in return is to this effect: In any given thousand garments the average of all the returns is as follows: chest measure, 38 inches; waist, 33½ inches; length of leg inside, 32½ inches; average height ranging from 5 feet 8½ to 5 feet 9, in New England, up to 5 feet ten for the average at the south and west; and a few deductions of weight are given from which one can infer that the average man weighs between 155 and 160 pounds.

The general testimony of these wholesale dealers in ready made clothing is that they have for several years past been obliged to adopt a larger scale of sizes than were formerly required. The testimony from this source shows that the human race is not deteriorating in this country.

House Moving and Infectious Diseases.

In the recent session of the French Association for the advancement of Science Dr. De Musgrave-Clay read a paper on the connection between house-moving and infectious diseases. He said that he had several times noticed the occurrence of isolated cases of disease after the subsidence of an epidemic, and in his search after the cause had found it, he believed, in the fact that either the family in which the disease occurred, or one of the neighbors, had recently moved. He thought it likely that the act of moving had, by taking up the carpets, etc., made a dust and had thus caused a fresh distribution of the infectious germs. He reported three cases of this nature and said that his object was to call the attention of his confreres to the possibility of such an occurrence, and also to furnish another proof of the necessity of thorough disinfection of every place in which there had been even a single case of contagious disease.—*The Medical Record.*

Isolation of Plumbing Fixtures.

All sanitary appliances should, as far as possible, be isolated from the living portion of the dwelling. In England it is recommended to locate such fixtures in a tower or extension cut off from the rest of the house by double doors; and where this can be done without risk of freezing it is to be recommended.

One of the most frequent faults to be found in American houses is the multiplication of plumbing fixtures for the convenience of the inmates, scattered without consideration and without sufficient reason all about the house. It is difficult to render such arrangements safe without a large outlay in safeguards, and even then an unnecessary risk is incurred by lack of simplicity. Basins may be very convenient in sleeping-rooms, but they are extra hazardous. Better walk a few steps farther to obtain running water than to invite odors into sleeping-rooms by pipes connected with the sewer or cess-pool.

All plumbing pipes should be in plain view and readily accessible. They should be exposed to light and air, both for the sake of ventilation and that defects can be quickly noted and removed. As steam-pipes are rendered ornamental by gilding or bronzing and are fully exposed to view, there is no reason why other pipes should be hidden. If pipes are enameled or nickel-plated, there can be no objection made to their exposure. In parlors or drawing-rooms they can be hidden behind movable panels or carried within closets.

Where this arrangement is termed unsightly it is best to carry all soil-pipes in recesses in the walls, which should be made sufficiently large for convenient caulking of joints. These recesses should be closed at the cellar ceiling so as thoroughly to exclude any odors from that source. Col. Waring also advises closing them at each floor as an additional precaution.—*Building.*

Fried Food.

The following lesson in frying is from the pen of Marion Harland:

Griddle cakes should not be fried at all, but baked on a soapstone griddle, if your cook will keep one intact. If on an iron surface, rub it lightly while hot with a bit of salt pork. The cakes should be as dry on the outside as muffins when taken off. For real frying, have plenty of fat, heated gradually to the boiling point. Drop in a bit of bread or dough to test it. If it sinks for a few seconds, then rises to the top and then begins almost directly to color, you may risk whatever may be the subject matter in hand. Put in a few articles at a time, turning them but once, and when of the right shade of brown take them up directly with a split spoon or strainer, then shake and lay in a colander to get rid of clinging drops of fat. Potatoes thus treated will not oil the napkin on which they are laid. Fishballs, croquettes, chops, cutlets, sweetbreads, etc., must be rolled in egg, then in crushed cracker, before immersion. The whole croquette family should be moulded hours before they are cooked, that, by stiffening, they may the better resist the soaking grease. Mush, hominy and fish must be coated thickly with flour. The object of this and of the egg and cracker process is to form at the instant of the plunge a crust impervious to the fat, which is the unwholesome element in fried foods. Properly treated, the interior of a fried fishball or doughnut is no more indigestible than if it had been baked, provided it is taken from the oleaginous bath as soon as it is done and shaken free of fat.

To sum up the stages of the operation:

1. Prepare the substance to be fried by moulding or trimming, or (as with oysters) drying for the grease proof coating, and apply this before the pan goes on the fire.

2. Heat enough lard, or butter, or dripping, or oil to float the objects and slip them in gently the moment it boils and has been tested, as directed.

3. Keep the heat steady rather than fierce.

4. Take up promptly, shaking and draining off the grease.

5. Serve soon and hot.

THE

SANITARY INSPECTOR.

VOL. 1, NO. 7. JANUARY, 1888. 25 CENTS A YEAR.

Sanitary Notes.

At the quarterly meeting of the State Board of Health, Dec. 26, the Secretary was instructed to make during the coming year, as far as possible, a systematic examination, chemical and otherwise, of the principal public water supplies in the State. As it is designed to have analyses done at stated intervals through the whole year, arrangements will be made at once with superintendents of water companies or with local boards of health to forward samples as they are wanted.

Mr. Lomb, of Rochester, New York, offers, through the American Public Health Association, one prize of $500, and one of $200, for the best essays on "Practical Sanitary and Economic Cooking."

Next July there is to be in Paris a congress of medical men and veterinarians to promote the scientific study of tuberculosis in man and animals.

In the last three months there have been two thousand cases of typhoid fever in Pittsburg. A recent investigation by a committee of the Board of Health shows that the water supply is dangerously polluted with organic matter.

The political soundness and safety of a nation are recorded in the annals of its mortality.—*Richardson.*

Twenty persons in Inoweal-law, Posen, were recently attacked with symptoms of trichinosis, and an investigation showed that they were poisoned by eating the flesh of trichinous ducks.

The Faculty of the University of Pennsylvania have banished cigarettes from the college grounds on the recommendation of Prof. J. Wm. White, who has charge of the physical education of the students.

Among the cities of Europe the death rate from typhoid fever varies very much. According to Bertillon* among 100,000 inhabitants there are in Vienna 14 deaths, in Stuttgart 15, in London 17, in Munich 18, in Brussels 19, in Paris 59, in St. Petersburg 90, in Marseilles, 149, in Barcelona 157, in Sarragossa 186.

In the town of Leek, Eng., with a population of nearly 14,000, the local sanitary inspector shows that in the last five years the mean expectation of after-life from birth in persons born in that town is 22 years more than it would have been had things remained as they were in the decade of 1851–61, when no real attempt had been made to grapple with the unhealthy conditions of the town. Further, the actual money value to the community during the years 1861–85, from the increase of longevity and freedom from sickness, amounted from various sources to $433,900 which is equal to a direct saving of $17,356 per annum.

The average death-rate of European armies on a peace footing ranges from 4.6 (Prussia) to 10.6 (Italy). The average death-rate for our army is 11.4 per 1000. During the last year, however, according to the Surgeon General's Report, it has been only 8.8 per 1000.

In the report of the Central Board of Health of Victoria, Australia, where typhoid fever has been notably prevalent, the following sound points for the suppression of the disease are put in the foreground: Compulsory notification, isolation, destruction of typhoid excreta, general cleanliness, speedy abatement of nuisances, cleansing drains, abolishing cesspits, and protecting water-supply.

A committee chosen to investigate a new system of heating and ventilating some of the school-houses in Detroit, Mich., said in the course of their report, "The avoidance of the window ventilation will be appreciated by every one as a great advantage, on account of the avoidance of the cold draughts upon the heads of the pupils sitting near them, and it will be a noticeable fact that the coughs and colds will be very remarkably reduced and very many cases of earaches and nasal catarrhs avoided by the introduction of the fresh air properly warmed without noticeable draft."

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* Revue D'Hygiene VIII, 829.

To Physicians.

A Schedule of Topics for physicians' report to the State Board of Health has been sent to the medical men in the State, *not with the expectation or the wish that each physician will report upon every subject mentioned*, but that he may be reminded of a few observations, the publication of which may throw some light upon unsettled etiological or hygienic questions.

Number of Aërial Bacteria.

According to Gautier, there are found in ten cubic meters of air over the ocean, more than 62 miles from the coast, 6 bacteria; in the air nearer the shore, 18; on the tops of high mountains, 10 to 30; in Paris, on the top of the Pantheon, 2,000; in the park of Montsouris, 4,800; in the Rue de Rivoli, 34,000; within new houses, 45,000; in old houses, 360,000; in the new Hotel Dieu, 400,000; in the Hôpital de la Pitie, 790,000.

Cholera's Late Work in Europe.

In France the number of deaths from cholera in 1884–85 was more than 13,000; in Italy, 30,000; and in Spain, 180,000. It is computed that these three countries lost more than 220,000 inhabitants out of about 600,000 who were attacked during those two years, and the material loss, in one way or another, exceeded one hundred million dollars.

The Cow Scarlet Fever Question.

In the July number of this journal we referred to an outbreak of scarlet fever in South Marylebone, Eng., the origin of which Mr. Power and Dr. Klein referred to a dairy in Hendon in which the cows had been affected with an eruptive disease of the udder, which was conjectured to be a bovine form of scarlet fever. Dr. Crookshank, of the Bacteriological Laboratory, King's College, London, has been investigating the matter and has lately made a report in which he claims that the disease which prevailed at the Hendon farm was the true Jennerian cow-pox. This Dr. Klein denies; meantime there is considerable interest in the questions of whether the cases which Dr. Crookshank has found are identical with the Hendon disease, and whether Dr. Klein's position is correct or fallacious.

Cremation of Domestic Garbage.

Municipal governments are learning that a very excellent way to dispose of their garbage is to cremate it. It would also be a good thing if domestic governments, especially in cities and villages, would learn the same thing. The garbage barrel is offensive to the senses and a danger; the vault, if there is one, is pestiferous enough without kitchen accessories. So, burn everything possible. For the private family the kitchen stove is an all-sufficient garbage crematory. In garbage furnaces on a larger scale the garbage is made to burn itself; so, in the kitchen range the rotten apples, potato peelings, cabbage leaves, tea-grounds and so on, may be destroyed with little if any sacrifice of fuel. Try it, and solve the garbage question.

Why Doctors Escape Small-Pox.

It is a funny question which people sometimes ask the doctors when small-pox is around, "You doctors don't take the disease; what do you do to prevent it?" And the answer is usually like this: "Why, my dear sir, simply vaccinate myself and nothing more." A medical journal says that the late Paul Bert once had himself vaccinated and then inoculated with the virus from a man dying with small-pox, and, as was to be expeeted, did not take the disease. One of our older Maine physicians, once, when small-pox was prevalent, took quite an effective way to show the public the immunity which vaccination will confer. He vaccinated his young son, and took him along in his rounds to see his small-pox patients. In one of the visits the boy stayed an hour or more in a room where there were five persons with small-pox, while the father attended the patients. It is hardly necessary to say that the boy did not take small-pox.

Duration of Infection of Scarlet Fever.

The *Lancet*, in speaking of the late prevalence of scarlet fever in London, says: "As regards the duration of the disease during the present autumn, it will probably be found that accordingly as the fever is of a milder type, so will its duration be lessened; but it may be safely said that the average will not be under fifty-five days. It is customary to isolate the patient until the desquamation is entirely completed and there is no roughness of the heels or ankles. It is a popular belief that this will always have occurred by the sixth week." A table is then given, showing the average duration of the period of infectiousness in the cases which occurred in the years from 1878–82. Omitting fractions, the average number of days in 1878 was 67; in 1879, 70; in 1880, 55; in 1881, 74, in 1882, 70.

National Quarantine.

The College of Physicians of Philadelphia have started a movement to establish a national quarantine system at all ports of entry, to supersede existing local quarantine regulations, by adopting the report of a committee appointed last October to consider the subject. "Two courses," the report says are open, "Either a practical abandonment of the public to a more or less individual and fruitless struggle with the agents of contagion and infection in whatever localities the movements of immigrants may convey them; or an intelligent, constant, earnest and vigorous effort to destroy them at ports of entry. The cost of attempting to prevent the spread of contagion among hundreds of scattered towns is infinitely greater than that which would place the ports in a nearly perfect state of defence against it, while the loss to the public caused by a single wide-spread epidemic would be greater than the cost of maintaining a perfect quarantine establishment for years."

Laundries as Disinfecting Establishments.

Laboratory experiments with disease germs have shown that by boiling clothing which has become infected, we practise one of the surest methods of disinfection, and it is considered at many quarantine stations a very important part of the routine disinfecting work to put the clothing through the regular laundry process. Corroborating the efficiency of this method of disinfection, Dr. Russell, medical officer of Glasgow, says that during the last ten years over a million of articles (from persons affected with every kind of contagion known in this country) have passed through the Glasgow laundry, and that he has never known a case of the interchange of disease, although the women engaged in the laundry have occasionally suffered from handling the linen before the boiling process.

Hygienic Tea-Making.

Since so much has been said in print regarding the proper way of preparing tea and coffee, it would seem that a larger proportion of private and hotel cooks should know how to do it. The odor of the fragrant Mocha or Java, as it simmers on the range, is delightful; but too often at the breakfast table the appearance and flavor of the beverage is rather disappointing, for that part of the coffee which is so grateful to us has been dissipated into the atmosphere. How to preserve a part of this fragrance, so as to make the coffee taste as it smells when it is preparing, is one of the questions.

The active principle of tea and coffee, which gives them their value, is an alkaloid, which in tea is called *theine*, and in coffee, *caffeine*. Chemically these alkaloids are identical. Theine and caffeine are quite readily soluble in hot water. In both tea and coffee there is a volatile essential oil which gives to their infusions their characteristic and pleasing odors and flavors. These essential oils are quickly volatilized and lost by boiling. Other constituents of hygienic interest are, in tea, a large proportion of tannic acid, identical with the tannin of the oak or of the hemlock bark, with which we tan our leather; and, in coffee, a smaller percentage of a peculiar kind of tannin.

Now, in preparing tea or coffee in the faulty way which much prevails, this occurs: the infusion is boiled, and by the boiling the essential oil is driven off and wasted, and tannin and bitter extractive matter are dissolved, which not only masks the little of the finer flavor which is left, but makes the drink more unhealthy.

In making good tea or coffee, the object should be to bring out and preserve the fine flavor, and, at the same time, to extract just enough of the theine or caffeine and other constituents to give "body" to the infusion. Boiling water should be poured upon the tea or coffee, and kept near the boiling point, but not boiled, for from five to eight minutes in the case of tea, twice as long in the case of coffee. One of the best ways is to pour cold, instead of hot water upon the tea or coffee, and just bring it to the boiling point. To settle coffee do not spoil it by adding fish skin, nor waste an egg in it; but simply set the coffee pot back on a cooler part of the cooking-range for four or five minutes, and it will become perfectly clear. Tea should be put down to steep not more than ten minutes before it is to be served, and coffee not more than twenty minutes before breakfast is ready.

So do nothing so disgraceful in the eyes of the intelligent cook as to boil the tea or coffee, as though the principal object were to make a strong decoction of tannic acid for a tannery pickling vat. Give us, instead, the genuine flavor of the tea or coffee with a fair proportion of theine and caffeine.

How Shall we Protect Ourselves.

In the *Dresdner Anzeiger* of Dec. 20, kindly forwarded by the Hon. S. J. Young, there is a report of a lecture by Dr. Schill upon the subject "How shall we Protect Ourselves from the Infectious Diseases?" and the latter part of the lecture contains so many valuable suggestions that we make a translation of it for the benefit of our readers:

The sources of infection are the excretions of the sick, as the saliva in rabies, the mucous secretions in whooping cough and glanders, the expectoration in pulmonary tuberculosis, the dejecta in typhoid fever, cholera, and dysentery, the cutaneous desquamation in scarlet fever, and the pseudo-membrane in diphtheria.

The contagion is received by inhalation, or by the way of the mouth with the food and drink, or through wounded or injured portions of the cutaneous surface. The communication of a disease may be either direct or indirect, according as the infection, the pathogenic bacteria, is capable of developing only within the system and is transmitted from body to body, or is also capable of an exogenous development, that is, may flourish outside of the body in masses of organic matter: food supplies, plants, the earth, etc. Of the contagia which are capable of developing only within the body may be mentioned that of small-pox, measles, scarlet fever, tuberculosis, glanders and diphtheria; while among those which are capable of multiplication outside the system as well as within it, are typhoid fever, cholera, and anthrax.

To guard against these contagions one should avoid everything which will lower the physical vigor: intemperance in eating and drinking, excesses and over-exertions of all kinds.

The minor diseases, as common colds, gastric catarrh, etc., should not be neglected, for the reason that on account of the changes which they cause in the diseased mucous membrane an easy entrance is afforded to dangerous disease-producing bacteria. The slightest wounds and injuries should be carefully treated according to the rules of antiseptic surgery. All useless fermenting or putrefying substances, as the remains of food and kitchen offal, should be speedily removed from the dwelling and food should be protected from flies and dust, and food substances which quickly take on fermentative or putrefactive changes should not be kept too long. The house should be cleaned or swept with the greatest possible avoidance of dust. The greatest possible cleanliness of person should be observed. To this belongs careful cleaning and brushing of the boots and clothes after going out and frequent bathing, washing of the hands before eating, and also, always after touching any suspicious substance, or things, as money, which has been in circulation, the uncleanly hands of others, door knobs, gloves, etc. Only hands which have been for several minutes washed with soap and water and then washed in a disinfecting mixture, as a three per cent solution of carbolic acid in water or a

1 : 1000 corrosive sublimate solution and dried on a clean towel, can in a medical sense, pass as clean. For safe and effective cleansing while caring for the sick, and also for the use of the laity, the sublimate soap of Dr. Geisser is to be recommended. Particularly when contagious diseases prevail, it is better that each person has his own towel; and the handkerchief should be restricted to its legitimate use and not be used to brush the boots! One should avoid coming too near strangers, and particularly strangers should not be permitted to kiss children. The danger that hacks and other public carriages may retain the contagion of the infectious diseases should be remembered, and in them the face or hands of children should not come in contact with the cushions. Books from public libraries and the newspapers of reading rooms may be the bearers of infection and therefore children should not come in too intimate relation with them, and the same may be said of money, which particularly they should be taught not to put in their mouths.

We should be careful in our relation with the domestic animals; only the senseless would be addicted to the kissing of dogs. Flies should be kept out of the house. Substances used as food and drink deserve particular consideration. The most important, water, should be used unboiled only when we are convinced of its purity. In the case of artificial mineral waters we can have assurance that they are free from bacteria only when they are prepared from distilled or boiled water, as they are in the larger bottling establishments. Milk may be the medium for communicating typhoid fever, scarlet fever, cholera, or, when the bovine udder is tuberculous, tuberculosis; prudence would therefore indicate the necessity of boiling the milk before it is used. Fruit from southern sources in cholera time should be eaten with circumspection--it should be washed and disinfected with heat or otherwise before being eaten. Without absolute necessity, food should not be permitted to stand uncovered and exposed to the air and dust of the dwelling.

As regards the sick, the following rules should be observed: All unnecessary communication with those suffering with infectious diseases should be avoided. When it can be done, well children should be sent to childless relatives when an infectious disease seizes a member of the family. In visiting the sick, do not be too free in shaking hands, and let kissing be avoided. After the visit change immediately the outside clothing and wash the hands, face and hair. The sick also have a duty to avoid infecting their relatives, and others, and particularly in consumption this should be remembered.

In the sick room avoid raising a dust. Wipe the floor and furniture with a damp cloth or sponge. Receive the sputa and all excreta in a disinfecting liquid and cleanse spittoons and the chamber vessels after use with a disinfecting solution or with boiling water. If the floor should become soiled it should immediately be treated with disinfectants. Infected clothing should not be removed from the room until it is enveloped in a sheet or other cloth which has been wet in a solution of carbolic acid or corrosive sublimate; it should then immediately be boiled. An important rule is that well persons shall neither eat nor drink in the sick room; nor shall the dishes used by the sick be used by others.

After recovery the convalescent should receive a full bath with soap and water, be clothed in fresh and clean clothes, and then be removed to another room that the sick room may be disinfected. To this end boil the bed-clothing, send the mattresses and feather beds to the disinfecting station to be disinfected with superheated steam; if there is a straw-bed, burn the straw; wash the bedstead and other furniture with a solution of corrosive sublimate, or if there are iron articles, with carbolic acid solution; wash the walls, windows, doors, etc., with the sublimate solution, or rub with bread which should then be immediately burned. Wash the floor with a sublimate solution, cleaning out, meanwhile, the dust and dirt from the cracks.

Animals as Carriers of Disease Germs.

Dr. S. E. Earp thus writes in the *St. Louis Courier of Medicine:* "There can be no doubt that the various pets of children are not infrequently a means by which the disease germs are carried from one house to another. In some instances where pet rabbits, kittens and lap dogs have been constantly fondled by the little patients, I think I have traced the source of contagion. In this manner, almost unawares, the epidemic may spread rapidly. Furthermore, it is apparently quite possible that the animal itself may be susceptible to the disease. In a clipping in the *St. Louis Courier of Medicine* of July, 1887, taken from the *British Medical Journal* of May 7, 1887, O. Bourn reports a case of whooping cough in a cat, as related by the mother of a child also affected at that time; also that this is the first instance where the disease was transmitted from man to animal. In 1864 my father and one other member of our family were attacked with this disease, and during the time a large house cat was frequently asphyxiated by attacks of coughing; at times, when long continued, there

was a peculiar noise which, it was thought, very much resembled what my father called a 'whoop.'

In October, 1886, I was treating a family in this city, where there existed three cases of diphtheria in small children. The baby, a child eighteen months old, kept almost constantly at its side a pet poll-parrot, in fact, oftentimes the parrot would take sweetmeats from the mouth of the baby. At a later date the feathers of the parrot began to drop; it seemed to lose its activity, it coughed frequently, its mouth was filled with a glairy mucus. During health it was a superb linguist; its voice now became hoarse and eventually lost. Upon examination, the throat presented a well-developed membrane. A few days ended the life of the bird. The children had been using the spray of corrosive sublimate, and this was adopted with the bird, but proved a failure.

With these instances mentioned, which seem very much as if infectious diseases would, in some instances, attack the lower animals, too much care cannot be given to this method of spreading the contagion. While at first thought these may be trivial matters, yet reflection will undoubtedly demonstrate the necessity of proper precaution under all similar circumstances.—*Annals of Hygiene.*

Choosing Houses.

In selecting a house, or a site for a new one, remember that where the sun will shine on the house for some hours a day one element of good is secured, especially if the sunshine enters at the windows of the living rooms or rooms most used during the daytime. After the aspect has been found to be suitable, and that a plentiful supply of sun and air is insured, attention should be given to the general position and construction of the house. If the ground is all porous, a layer of concrete not less than six inches thick, and composed of cement or lime and broken bricks or gravel, should be spread over the whole of the ground covered by the building. This will prevent the passage of ground air up through the floors. Air will travel through the ground for some distance, and, as it invariably becomes contaminated by taking up carbonic-acid gas in its passage, it is not suitable for inhaling. The house acts as a sucker on the ground, and if, unfortunately, the site is on "made" ground—that is, composed of all the refuse of a town—the ground air becomes the medium of disease. No houses should be built without a well-ventilated air space between the earth and the ground floor, especially if the layer of concrete on the surface

is omitted. The walls should be built of good hard-burnt bricks or non-porous stones set in lime or cement mortar. Common under-burnt bricks or porous stones hold moisture, which evaporates with the rise in temperature and so chills the air in the house. If the bricks or the stones of the walls are suspected of holding moisture, the whole of the external surfaces should be covered with cement, or tiled or slated above. The foundations of the walls should rest on thick beds of concrete bedded in the earth; and to prevent the ground damp rising up the walls, a damp-proof course of slates, in cement, or a bed of asphalt should be laid in the full thickness or width of the wall just above the ground line. Dryness in this climate is so essential to health, that any building which in its floors, walls, or roof sins by admitting moisture, should be rejected as a place of residence by those who value their health. In tropical climates buildings are constructed to keep out the heat; but here we build to retain the heat and keep out the cold.—*Building.*

Economic Sanitation.

According to the report of the Wisconsin State Board of Health, a curious effort at compromise, "in the interest of economy," was made by the Board of Health in a town of some 1,200 inhabitants in the southwestern part of the State. The Health Officer's compensation was fixed at the "rate of $3.00 per day for the time actually spent in the service, provided, however, that the whole amount to be paid during the year should not exceed $15.00." This remarkable management did not effect the saving that was designed and expected to result from it. Diphtheria broke out in the town at a time when the appropriation was exhausted, and the Health Officer declined to work without assurance of payment; this was finally given, whereupon energetic measures of quarantine were enforced and the disease was promptly stamped out. The cost of so doing was very much beyond the limit set by the economical Board at the beginning of the year; notwithstanding which, the expenditure was one of the best and most profitable that could have been made.—*Annals of Hygiene.*

Want of a Sanitary System in Russia.

The Vice-Director of the Russian Medical Department, Dr. Bubnoff, has recently issued a report on Sanitation in Russia, in which he remarks that no working sanitary system can be said to exist in the empire. This is, indeed, only too true, as all the reports which pass

into the archives of the Medical Department must impress on the minds of those who, like Dr. Bubnoff, are responsible for the sanitary condition of Russia. The death-rate in some districts ranges from 60 to 80 per 1000, of which an enormous proportion is due to mortality amongst children—in some places, indeed, as much as 79 per cent of the total mortality. In spite of a high birth-rate, the population is increasing only at the rate of 1 per cent. Every year some 2,800,000 persons die in Russia. According to Dr. Bubnoff's statistics, something like 1,000,000 of these deaths may fairly be traced to preventable causes.—*Lancet.*

Switz Anti-Vaccinationists.

The success of the anti-vaccinationists is aptly shown by the results in Zurich, Switzerland, where, for a number of years until 1883, a compulsory vaccination law obtained, and small-pox was wholly prevented—not a single case occurred in 1882. This result was seized upon in the following year by the anti-vaccinationists, and used against the necessity for any such law, and it seems they had sufficient influence to cause its repeal. The death returns for that year (1883) showed that for every 1000 deaths 2 were caused by small-pox; in 1884, there were 3; in 1885, 17; and in the first quarter of 1886, 85.—*Sanitarian.*

Questions and Answers.

Some people think that there is danger in washing the clothing of typhoid fever patients. How much truth is there in this belief?

E. C. S.

Ans. Instances are not so very rare in which women who have done the washing for typhoid fever patients have come down with typhoid fever soon after, thus giving rise to the reasonable assumption that they had taken the fever from the infected clothing. One such case came under the observation of the present writer. In the light of these cases it should be laid down as an imperative rule to put the bed linen and body clothing of the patient, as soon as it is taken off, into a tub containing a disinfecting solution, of corrosive sublimate one drachm to the gallon of water, or carbolic acid seven ounces to the gallon. (Solution C. or Solution E., circular of State Board of Health.) By keeping the clothing in the disinfecting solution until it can be boiled, the washing will be entirely devoid of danger from the disease.

[Form 45.]

(Supplement to the Sanitary Inspector.)

SCARLET FEVER.

ITS PREVENTION AND RESTRICTION.

(REVISED EDITION.)

Issued by the State Board of Health of Maine.

Scarlet Fever, Scarlatina, Scarlet Rash and Canker Rash are several names for one and the same disease. It is very desirable that only the name Scarlet Fever should be in general use, for so many names have wrought much confusion in the popular mind. Sometimes in scarlet fever the fever is high, sometimes mild. Sometimes the eruption is a vivid red rash, sometimes it is barely perceptible. Sometimes the inflammation of the throat is very malignant, sometimes so slight as not to be noticeable. No matter how these manifestations of the disease may vary in different cases, it is all scarlet fever, and one attack prevents subsequent attacks. With children scarlet fever is one of the most infectious of diseases, although at times it behaves capriciously. Sometimes children who have never had it escape, although freely exposed to its contagion. Again, the slightest momentary exposure may be sufficient to give the disease.

The poison of scarlet fever is very readily conveyed in clothing or other things even long distances. Such cases as this are so common that almost everybody knows of them: A person calls to enquire about his neighbor's child who has this disease, opens the door for just a moment, perhaps does not go in, walks a long way home, and then gives the disease to his own children.

The contagion may be preserved for many months in clothing or in rooms. An article, for instance, a handkerchief or a doll, may be used by a scarlet-fever child and then laid away, perhaps a year, and when unpacked give the disease to other children. A letter or a paper sent by mail may bear the disease, the hair of the head or the beard may carry it, when the clothing has been changed and disinfected and this part of the body neglected.

After recovery, for several weeks at least, the scarlet fever patient continues to be a source of danger to others, as long at least as the skin continues to be rough and to give off its branny scales of desquamation, or peeling.

PREVENTION.

In spite of the subtle infectiousness of scarlet fever, preventive measures will be rewarded with marked results. Carefulness can keep the infection from being scattered abroad, and disinfection can utterly destroy its power to do harm.

Keep your children away from the disease and away from persons and things that have been where it is. Keep, also, all who have recently been sick of the disease and all who have been where it is away from your children. Scarlet fever is always a dangerous and often a deadly disease; therefore, it may sometimes be your duty in protecting your children to treat the grossly careless as malefactors. This duty of protecting your family from the danger of scarlet fever is as clear and imperative as would be your obligation to stay the hand that would carry a deadly draught to the lips of your child. One great reason for warding off scarlet fever is that after childhood this disease is not so fatal, and also after childhood the liability to take the disease is very much lessened. It therefore happens that many escaping the disease in childhood never have it, although many times exposed to it later in life.

RESTRICTION.

The scarlet fever patient should be put into a room by himself. It is better to have the room in the upper story and at a distance from rooms inhabited by children. Before the patient is put into the room, remove everything possible which can catch and retain the poison of he disease, viz: carpets, useless curtains, unused clothing.

Notify the secretary of the local board of health at once.

Have some person specially employed as a nurse, who is not to visit other parts of the house. No other person not needed should be allowed to visit the sick room, especially those who have children of

their own or who must go where children are. The nurse while attending the patient should wear only such clothing as can be disinfected by boiling, before she goes to other places.

The room should be ventilated as thoroughly and constantly as possible without incurring the danger of draughts. Especially during convalescence a chill is to be avoided. Ventilation is desirable, both on account of the patient and on account of diluting and letting out the poison of the disease, so that its concentration may not be a danger to others in the house.

Receive the discharges from the throat and nose upon pieces of linen or cotton cloth, which are to be burned immediately.

The discharges from the bowels and kidneys should be disinfected with Solution A, Solution B or Solution C in large quantity, and buried at some distance from the dwelling.

The utmost care should be taken with the clothing of the patient. Do not carry it from the sick room dry. When removed, it should be dipped into a tub of Solution C or Solution E, and afterwards boiled in the solution.

No person from a house where scarlet fever is should go into public assemblies, such as schools, churches or concerts, or anywhere into the presence of children who have not had the disease. Much of the contagion of scarlet fever is in the scales which are thrown off from the skin during desquamation; it is well to use frequently during this period inunction of some oil or other fatty matter to prevent the scattering of these infectious particles.

Persons who have had scarlet fever should never be allowed to go to school or mingle in any other way with the public for at least five weeks after the disappearance of the fever and the rash, and not then until the clothing is thoroughly disinfected, and the body has received a disinfecting bath, not omitting the head.

In case of death the body should be enclosed in a sheet thoroughly wet in Solution A, Solution C (eight ounces to the gallon of water), or Solution E, and put into a tight coffin, which should not afterward be opened. The funeral should be strictly private, and in no case should children be permitted to be present.

After recovery or death vacate the room; burn all things which are of but little value; disinfect everything else, which can be so treated, with liquid disinfectants (Solution A, Solution C or Solution E), and afterwards boil; disinfect the room with sulphur fumigation; wash all surfaces with Solution A, Solution C (four ounces of the solution to one gallon of water), or Solution E, and afterwards with soap and hot water; finally throw open the doors and windows, and ventilate thoroughly.

DISINFECTANTS.

SOLUTION A.—For excreta, privy vault, woodwork, and other surfaces.

SOLUTION B.—For excreta, privy vaults.

SOLUTION C.—For clothing, the hands, excreta, vaults, furniture and woodwork.

SOLUTION D.—For the person, the hands.

SOLUTION E.—For clothing, the hands, the person, excreta.

BOILING.—For clothing.—SULPHUR FUMIGATION.—For use only where liquid disinfectants cannot be used or to supplement other methods.

SOLUTION A.

Chloride of Lime,	6 ounces.
Water,	1 gallon.

Mix. Cost, about three cents, or seventy-five cents a barrel. This is about a three per cent solution. (Decolorizes and destroys fabrics.)

SOLUTION B. "*Purple Solution.*"

Corrosive Sublimate,	2 drachms.
Permanganate of Potash,	2 drachms.
Water,	1 gallon.

Mix and dissolve. Label, *Poison!* Cost, two or three cents a gallon, when the chemicals are bought by the pound. (Stains fabrics, etc.)

The permanganate of potassium in this solution is used to give it color as a precaution against mistakes. It also, in this quantity, increases the deodorizing qualities of the solution. This is approximately a 1 : 500 solution of the sublimate; therefore, mixed with an equal quantity of water or liquids to be disinfected, it gives us a 1 : 1000 mixture. One ounce of this solution contains very nearly one grain of the corrosive sublimate.

SOLUTION C. "*Blue Solution.*"

Corrosive Sublimate,	4 ounces.
Sulphate of Copper,	1 pound.
Water,	1 gallon.

Mix and dissolve. Label, *Poison!*

This is sixteen times stronger than Solution B, and is intended as a standard solution, from which, by dilution with water, a solution of the proper strength for use may be made. To make from it a solution of the proportion of

1 : 500, add 8 ozs. to 1 gallon of water.
1 : 1000, add 4 ozs. to 1 gallon of water.
1 : 2000, add 2 ozs. to 1 gallon of water.

SOLUTION D.

Labarraque's Solution,	1 pint.
Water,	1 gallon

Mix. Cost, about twenty-five cents.

SOLUTION E.

Carbolic Acid, (90 per cent.)	7 ounces.
Water,	1 gallon.

Mix. This is approximately a five per cent. solution, or in the proportion of 1 : 21.

Sulphur Fumigation. To use this effectively three pounds of sulphur should be burned in a room ten feet square. Every opening into the room, flues, doors, windows' cracks and crevices, must be closed, except the door by which the disinfector is to escape. The sulphur is to be burned in an iron kettle or other vessel set in a tub containing a little water to guard against fire. Ignite the sulphur with a few live coals or with a little alcohol or kerosene and a match. Leave the room quickly, for the fumes are highly poisonous when breathed, and close the door tightly. Let the room remain closed twenty-four hours or more. Then air thoroughly for several days.

Boiling for at least half an hour is a sure way to destroy infection. Immersion in Solution C, one part to two or three of water, or in Solution E, one-half strength, will lessen the danger from infected clothing until it can be boiled.

THE

SANITARY INSPECTOR.

VOL. 1, NO. 8. FEBRUARY, 1888. 25 CENTS A YEAR.

Sanitary Notes.

"Health is the foundation of all our physical happiness."—*Herder*.

We wish it understood that every cent received for advertisements and for subscriptions to this little monthly is to be expended to defray the cost of its publication, and, if those little 25 cent tokens of appreciation come in freely enough, in making it more valuable as a sanitary journal.

A new and revised edition of the preventable disease circulars—Diphtheria, Scarlet Fever, and Typhoid Fever—has been published by the State Board, and will be supplied to the local boards in any number needed for distribution when any of these diseases prevail in their respective towns, or when there appears to be danger of their outbreak.

We would again remind our readers that samples of water for analysis are not desired at this office when the spring or other source is not used as a water supply for individuals or communities, and there can be no reasonable grounds for suspecting pollution of the water. Each analysis uses up a full half day, therefore it is necessary to exercise some discretionary power in regard to what samples from private individuals need to be examined and what do not.

We find that quite frequently disinfectants and disinfecting methods are used which are entirely worthless, or nearly so. As the result of this, that which is supposed to be accomplished is not accomplished, and disappointment and disaster follow too often. We would urge that the disinfectants, and those only, be used which are recommended by the State Board in its revised circulars.

For disinfecting purposes smoking with "tar and brimstone" smacks of ye olden time, when a powerful smell was accepted as

synonymous with disinfection. As in our doubting age we have no testimony that tar is worth anything as a disinfectant, and have no very clear proof that sulphur fumigation is a trustworthy method of disinfecting, it must be regarded as good advice not to waste the tar and to reserve as little as possible of disinfecting work for sulphur fumigation.

We have received the first number of The Monthly Sanitary Record, the official organ of the Ohio State Board of Health. It is a neat little journal of the size of the Sanitary Inspector and the make-up of the first number warrants us in saying that its publication will do a great deal of good in its State.

Last year, in June, five cases of diphtheria, one of which terminated fatally, occurred in the town of Linneus. The secretary of the local board quarantined the house and disinfected with care. No other cases followed. Last month another isolated case occurred in another family and the same careful quarantining and disinfecting methods were pursued, and the disease has been confined to that single case. Careful work of this kind is an exceedingly profitable investment for a town.

This office has lately been making arrangements with the various water companies in the state to send, for chemical examination at stated times through the year, samples of the water which they are supplying to their customers. The companies so far without exception have shown a willing compliance with the request to forward samples, and for their co-operation with the Board in this direction we take this occasion to return our sincere thanks.

Dr. Edward F. Brush, in a paper read before the late meeting of The Medical Society of the State of New York, says that the percentage of cattle infected with tuberculosis in England is placed at five per cent., and increases till, in some of the thoroughbred Jersey herds it is stated that twenty per cent. are so affected.

From the 15th of December to the 1st of January, there were 1,288 cases of cholera in the Valparaiso hospitals, of which 644, or exactly 50 per cent., terminated fatally.

A decree has just been issued by the Austrian Minister of Public Instruction, forbidding the use of books printed with small type in public schools. This is a move in the right direction, and we should like to see those parents and teachers thinking a little in the same direction, who encourage or permit their children to read so fine a type as that in which, for instance, the *Youth's Companion* is printed.

The Bulletin of the Iowa State Board of Health says that among the new diseases reported to its office are "cholery and phantom" and "bronchitis of the bowels."

In Pittsburg they think they have discovered a method "of thoroughly purifying water" by passing through it electrical currents, which they claim kill all germs of disease and leave the water "clear of any impure substances." This suggests some problems which we should like to see carefully worked out, but we suspect that there is somebody with a very sanguine temperament at the Pittsburg end of the line. We suspect, too, that Jove may get himself into trouble next summer unless he stops fooling around with his thunder bolts, for "applications for patents have been made."

In some of the schools of the Canton of St. Gall, Switzerland, the scholars are provided with an extra pair of shoes and stockings to wear in the house during school hours, when those which they have worn on the way to the school have become damp. During the school session it is the janitor's duty to have the "foot-wear" which has been removed, nicely dried in a warm room, ready for the return tramp.

Measles.

From several towns during the last few weeks the executive officers of the local boards have reported cases of measles. Some of the reports which have been received in this office would seem to indicate that the disease is assuming a rather severe type. This disease should not be regarded as one which brings no danger with it. In the average measles epidemic the mortality-rate which it causes directly and indirectly is a very considerable one.

About a year ago, in New York City, an epidemic of measles prevailed, and during a single week 641 new cases and 72 deaths were reported as due to it. About the same time 472 cases and 70 deaths

were reported in Liverpool in one week in April, and during March there were 788 of which 107 were fatal. In 1886 there were in England and Wales as many as 11,576 fatal attacks of measles.

Many people are under the false impression that restrictive measures against measles are useless. It is true that, on account of the early period of infectiousness of the disease, we are at a disadvantage; but, if prompt and strict isolation of the cases were practiced, and all infected and suspected persons were excluded from the schools, many young persons might be saved from having the disease at this unfavorable season of the year, and many schools might be spared an unnecessary closure.

On Placarding Infected Houses.

One admirable feature of our new law is the provision for signifying to the public the premises where cases of the infectious diseases exist. The law empowers the local board of health and makes it its duty "to give public notice of infected places, by displaying red flags or by posting placards on the entrances of the premises." For obvious reasons the householder of average sensibility would dislike to have the red flag flaunted from his door, but no sensible person will be likely to object to having the public warned by the posting of a placard of the modest dimensions of five and one-half by three and one-half inches upon the entrances of his premises. A placard of this description has been sent to the local boards by the State Board and has been quite generally used when the contagious diseases have appeared. The following represents one of these cards in miniature:

NOTICE.

This house contains a case of

DIPHTHERIA.

When the danger from contagion has passed this card will be removed.

Per Order,

BOARD OF HEALTH.

Any person removing this card without authority is liable to a fine of Fifty Dollars.

As far as is known there has been no objection made by the householders against the use of this system of placarding. In fact many of them appreciate the advantage of being relieved of the necessity of warning each individual who approaches the house, and of being able to throw the responsibility upon the board of health of shutting the door against their careless neighbors.

In regard to the placarding of infected houses and some objections which might be made against the system, Dr. Wight, Health Officer of Detroit, says: "At first the people object to having their houses placarded, as a violation of personal liberty. A little argument convinces reasonable citizens that no man has the natural or acquired right to expose his neighbors to a deadly contagious disease by concealing it in his own house. Personal liberty to send scarlet fever into a school with your child is rather diabolical than beneficent. Personal liberty to infect a church with a diphtheria-corpse is tempting Providence to start an epidemic. A law-abiding community will submit, and soon the system of placarding, if it were left to an election, would receive a majority of votes in its favor. Experience proves its value in many ways to the citizen. He knows and feels that, by reason of it, his family is more secure against diseases that cost money, anxiety, and sorrow.

Diphtheria.

In the country in this vicinity, on November 20, 1887, a young lady, aged twenty, received a call from a young man in the neighborhood who was suffering from sore throat. In about ten days she was taken with diphtheria. One week later, December 8, a brother aged eleven and a sister aged nine were also attacked with the same disease. In two days more, December 10, the mother was affected, and on December 11, the father commenced with a mild spell of the disease. The mother, while suffering from the disease, being unaware of its nature, as no physician had been consulted, visited a married daughter, December 11, and kissed and petted her little granddaughter, aged two years. In eight days the granddaughter had diphtheria, and one week later the mother of the little child contracted the disease. After this, a married son, aged twenty-one, living at home with the parents above mentioned and with those first affected, had diphtheria, January 3, 1888, thirty-five days after the first appearance of diphtheria in the family. In the first family affected, two escaped the disease, a child aged three, and the wife of the young man mentioned. The married daughter's husband also escaped.—*Monthly Sanitary Record.*

Destructive Action of Boiling Water on Typhoid Bacilli.

In order to test the destructive power of boiling water on typhoid bacilli, Dr. Vilchur, of St. Petersburg, made a number of pure cultures in broth, keeping them in a thermostat for two days at a tem-

perature of about 33° C., and then mixed them with known proportions of boiling water, immediately afterwards sowing the mixtures in jelly. The results showed that, when the volume of boiling water equalled that of the culture, the bacilli were partially but not wholly destroyed. When double the volume of boiling water was used, the bacilli were all killed. From experiments with typhoid stools he found that all the bacilli, however numerous, were invariably destroyed by the addition of a volume of boiling water equal to four times that of the stool. In this way he suggests it will be easy to disinfect with certainty all the dejections of typhoid patients.—*Lancet.*

A Comparison.

Dr. Baker of Michigan, quoting Van Tienhoven in Trans. Internat. Cong. of Hygiene, says that contagious diseases may be compared to a conflagration. As soon as a single case appears in a crowded community it is analagous to a house on fire, and threatens the whole neighborhood. The first thing to be done on the appearance of a fire is to put it out as quickly as possible, and for this purpose, where possible, the services of the fire department are called into immediate requisition. So on the appearance of the first case of a communicable disease, the health officer (the sanitary fire department) should receive prompt notice, so that he may aid the attending physician and the household in preventing the spread of the disease. In the case of scarlet fever and diphtheria, the first thing to be done is carefully to isolate the sick from the well. Healthy children, especially, should be removed at the very outset, and kept away from the sick until complete recovery. In crowded dwellings and where there are many children, it is often difficult to obtain complete isolation; but this must be secured. Sometimes it can be done by removing the well children to the house of some neighbor or relative, until the danger is past. If the house is roomy, the sick person can be given an upper room, and from this part of the house the children can be kept away. In whatever way undertaken, the isolation should be thorough; nothing short of it will be likely to succeed.

Croup and Diphtheria.

The following is taken from the Monthly Bulletin of the Iowa State Board of Health:

The great similarity between some forms of croup and diphtheria often results in erroneous diagnosis. It would evidently be the safest

plan to treat membranous croup as diphtheria, so far as sanitary regulations are involved. The following case, reported to this office, will serve to illustrate the point suggested above:

———, Iowa, Jan. 8, 1888.

Secretary, State Board of Health: The case of diphtheria reported to you died on Christmas day. By persistent effort I have arrived at what I think the source of the infection. The father of the child has a brother-in-law, who resides in Des Moines, whose child died about six weeks ago, that was said to have been "sick for over a week with sore throat, and then ran into membranous croup!"

Two days after the burial of my patient, I went to the house to superintend the disinfection of the premises, and whom should I meet there but the brother-in-law from Des Moines. I privately asked the father of the deceased how it happened that this man was there. He replied that his family physician at Des Moines had advised him to take a run into the country with his family, as a matter of invigoration, disinfection, and healthfulness generally.

Now, to put it mildly, does not this look suspiciously like an imposition upon us in the country? I hope that the Des Moines physician is blameless, and that the health authorities there do their duty as we strive to do here, and I also hope the Des Moines case was not diphtheritic. I understand that it was determined in that case to resort to tracheotomy, but the child died before the surgeon arrived; but I cannot rid myself of the belief that my patient died from infection received from Des Moines, where there was not only no safeguard, but actual effort made to disseminate it.

Very respectfully,

————————, M. D.,
Health Officer.

Sewer Gas Poisoning.—1

Intelligent people generally understand that some of the contagious diseases may be caused, or at least their occurrence may be favored, by the breathing of air which is contaminated with the gases from sewers, privies, cess-pools, etc., or by drinking water which has become polluted with organic matter, but it is not understood as it ought to be that although the breathing of impure air or the use of bad water may not give rise to any outbreak of diphtheria, typhoid fever, or other zymotic disease, these unhealthy conditions of living have a constant tendency to lower the standard of health and induce a variety

of ailments, the symptoms of some of which are vague and indefinite, while in other cases it is easy to arrange the disorder in the list of diseases which have a definite name. In the *Medical News* of some months ago there was a paper by Dr. Henry Hun, Professor in the Albany Medical College, in which an interesting series of cases is related illustrating some of the phases of the symptoms in cases of sewer gas poisoning. These histories are so instructive, and the lessons which they teach are so important, that we here reproduce as many of them with their accompanying remarks as we can find space for.

The most generally recognized effect of sewer-gas poisoning is a disturbance in the functions of the alimentary canal, and, as illustrative cases of this group, I would report the following:

Case I.—Mr. E., aged 55, slept in a small room, with untrapped stationary wash-stand, and for ventilation opened a window on a small well in the centre of the house, in which well an untrapped gutter-pipe connecting directly with the sewer, opened not three feet from the window. On pouring oil of peppermint into a distant part of the house-drain, the odor of peppermint filled this bedroom immediately. For five or six years, almost as long as he had lived in this house, Mr. E. vomited every morning as soon as he got out of bed, and presented no other symptom. The pipes were trapped, and the plumbing put in proper order, and the vomiting of Mr. E. stopped immediately; so that, in this case, the vomiting, and the vomiting only, seemed to be directly caused by the sewer-gas. The wife of Mr. E., who slept in this same room, died of sewer-gas poisoning, (Case 16-), and his son-in-law, who did not sleep in this same room, but whose room was ventilated by the same window in the little well, also presented symptoms of sewer-gas poisoning (Case 19).

Case II.—Mr. G., aged 43, had been working very assiduously during two weeks in January, in a building in which the plumbing was full of defects; among other defects, sewer-gas had free access to the hot air which warmed the building. During the last week of his work in this building, and for a week afterward, Mr. G. had a severe diarrhœa, or rather purging, which came on every morning, and consisted of half a dozen or more copious watery discharges which exhausted him greatly, and then ceased, not to return till the same hour next morning. The diarrhœa finally yielded to quinia.

Case III.—Mr. T., aged 28. In the spring the drain under the kitchen was broken, and the contaminated earth was upturned in order to repair the break. Mr. T. went down to look at the work,

and was attacked with vomiting, purging, loss of appetite and great prostration, which lasted about a week, and ran its course without fever. The prostration lasted about two weeks.

Case IV.—Mr. H., aged 32. In the spring the drain under the basement was broken, and the contaminated earth was upturned in order to repair the break. Mr. H. examined the works several times, and before it was completed he was attacked by vomiting, loss of appetite, and violent purging, the stools being copious, watery, and of dark color. The purging continued about a week, and ran its course without fever. The prostration lasted about two weeks.

A Mr. P., who had charge of the repairs of this same drain, was attacked by a severe sore throat.

In these four cases the sewer-gas poisoning caused only a temporary gastro-intestinal disturbance which was accompanied and followed by a prostration of short duration, but in the following case the subsequent prostration continued a long time.

Case V.—Mr. P., aged 18, was present when a very foul privy vault, which had been unused and covered up for many years, was opened. He was immediately seized with faintness, and with severe vomiting and purging. Afterward he was extremely prostrated, and for five or six years he was an invalid unfit for any physical or mental effort. He was very weak, and appeared to be in a condition of general debility without presenting any evidence of organic disease.

The following case is interesting in many respects:

Case VI.—Miss S., aged 40. An iron ventilating pipe of light weight ran up in the wall of her bedroom from the drain to the roof. The joints of this pipe were found, on examination, to be open, and the peppermint test gave a strong odor of peppermint in the room. Miss S. had occupied this room less than a year when she had an attack of acute Bright's disease, œdema of lungs, and general œdema, vomiting, diarrhœa, etc., abundance of casts, and a large amount of albumen in the urine. She was taken to the hospital, and made a good recovery. After a few months she returned to this same room, and during the next ten years had no return of the Bright's disease, but suffered from frequent attacks of complete loss of appetite, great prostration and wretchedness, vomiting, diarrhœa, coated tongue, and headache. On several of these occasions the urine was examined, and was found to be free from albumen and casts. Each attack lasted from one to three weeks, and she had eight or nine such attacks each year. A year ago she had three severe attacks of facial erysip-

elas; she was scarcely over one attack a fortnight before she had another, and it was these attacks of erysipelas which led to an examination of the plumbing. The defective pipe was replaced by a thicker one properly leaded, and Miss S. has enjoyed good health ever since.

Eberth's Typhoid Bacillus in Michigan.

Last October there occurred an outbreak of typhoid fever at Iron Mountain, Michigan. Samples of the suspected water from that place were secured by Dr. Vaughan, of the Michigan Hygienic Laboratory, and experimental studies made with it to determine whether it bore the specific infection of typhoid fever. Sterilized flasks, some containing a meat peptone preparation, and others containing milk, were inoculated; some with the suspected water from Iron Mountain, some with the water from a well in Lansing, while others as controls were kept without inoculation.

All these flasks were then placed in a vegetation apparatus and kept at from 30 to 38 degrees C.

Seven days after the inoculations were made, four flasks were removed from the vegetating apparatus and their contents carefully examined for ptomaines. The meat preparation inoculated with Iron Mountain water was strongly alkaline in reaction, and was reduced to a syrupy form. A few drops of the syrup were injected on several occasions, by means of a hypodermic syringe, under the skin on the back of a cat. A marked rise of temperature in the animal followed, which fell again to normal within twenty-four hours.

A larger amount of the syrup was injected, Dec. 1, under the skin on the back of a large Maltese cat. It caused a marked decline in temperature in sixteen minutes followed by a rise, until at 4.20 p. m. Dec. 2, twenty-four hours after injection, it was 104.1 degrees. At 8.50 a. m. on Dec. 4 it was normal. Upon killing the cat with chloroform, no abnormality could be found in the abdominal and thoracic organs.

Some of the syrup obtained from milk inoculated with Iron Mountain water, was injected under the skin on the back of a cat. It caused a similar rise of temperature.

The meat and milk preparations which had been inoculated with Lansing water, when treated the same as the Iron Mountain water, gave negative results, thus proving the absence of anything in the meat and milk preparations themselves which could cause the effects

observed. The two controls, after remaining in the vegetation trough for forty days at the temperature of the body, without showing any bacterial growth, were treated in the same manner as described, but with negative results.

Evidently the syrupy residue, which was used in the foregoing experiments, contains à poisonous ptomaine, the special or characteristic production of the micro-organisms present in the Iron Mountain water; and, if these are the germs of typhoid fever, this syrup contains the special poison of typhoid fever.

In the intestines of a man suffering with typhoid fever, the germs grow and constantly produce the ptomaines, which are absorbed and cause the symptoms of the disease. If our extract contains the typhoid fever poison, we should expect it to produce, when employed as in the above experiments, symptoms of the disease, but we should expect these symptoms to be temporary.

We think that this is, substantially, what is shown by the experiments. The primary depression of temperature, observed when the larger amounts were employed, is certainly nothing more than might be expected from a large dose of a powerful poison; then the elevation of temperature which followed was, in the majority of the experiments, sufficiently marked. We did not expect to find in the animal examined, the characteristic intestinal lesions of typhoid fever, as we suppose these to be due to the growth and activity of the micro-organism, or to the local action of the ptomaine where it exists in largest amount, the place of its formation.

That the Iron Mountain water contained the typhoid bacillus, was demonstrated by the potato culture, and by microscopical examination, as well as by a physiological experiment.

The first cultures were made Nov. 9, about two weeks after the water had been received. These cultures contained, beside the typhoid bacillus, germs ordinarily found in water; but the second cultures, made Dec. 7, contained only the typhoid bacillus. These had either destroyed or outlived the non-pathogenic organisms. This is an interesting fact, since it shows the poisonous germ to be very tenacious of life.

In the meat peptone preparations, the bacillus formed a scum, which had the lustre of mother-of-pearl and was bluish gray, becoming slightly brownish after some weeks.

Some of this growth was removed with a sterilized rod, rubbed up with 2 c. c. of water, which had been boiled, taken into a large,

sterilized hypodermic syringe, and injected into the abdominal cavity of a cat. The temperature increased as in other experiments, falling to normal upon recovery. Upon killing the cat with chloroform, nothing abnormal was found at the point of injection, or in the peritoneal cavity. No traces of the small masses of injected bacilli could be found. The mucous membrane of the small intestine was slightly hyperæmic, and, in the region of Peyer's glands, were observed four little ulcers about the size of a pin-head. Two or three similar ones were found in the ascending colon, but one of these was about four times as large as those in the small intestine, and around this was quite an area marked by inflammatory action.

The result leaves no room for doubt concerning the existence of the specific poison of typhoid fever in Iron Mountain water.—*First Quart. Report Mich. St. Laboratory of Hygiene.*

House Poison.

If the condensed breath collected on the cool window-panes of a room where a number of persons have assembled be burned, a smell as of singed hair will show the presence of organic matter; and, if the condensed breath be allowed to remain on the windows for a few days, it will be found, on examination by microscope, that it is alive with animalculæ. The inhalation of air containing such putrescent matter causes untold complaints which might be avoided by a circulation of fresh air.—*Philadelphia Bulletin.*

Death from Sewer-Air.

The assumed fact that plumbers escape disease and infection from the inhalation of sewer-air is often referred to as indicating the harmlessness of this air or gas. Were all the facts known, this view would undoubtedly be much modified. A recent occurrence in England would seem to prove that men who follow this trade are not so exempt as is generally supposed. An inquest was held in Liverpool on the body of a plumber's apprentice who had been engaged in repairing pipes which connected with a sewer. Quantities of gas came through these pipes, and at the time the young man complained of pain and sickness; in forty hours he died. The medical evidence was to the effect that death was due to the inhalation of sewer-air, and the jury rendered a verdict to that effect.—*Science.*

THE

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Sanitary Notes.

To local boards of health. If a case of small-pox should occur within your jurisdiction please report the fact immediately by telegraph, to be paid here. Quarantine and begin at once the work of vaccination of all persons who have possibly been exposed, or who will be liable to be exposed to the infection, and do not wait for a positive diagnosis to be made, but begin the work as soon as the suspicion occurs that you have a case of this disease. A few points of fresh and trustworthy vaccine virus will be constantly kept on hand in this office, and may be obtained upon notification when it can be more quickly received from here than from any other source.

On account of the severe and continued prevalence of small-pox in Cuba, all ships arriving from ports in that island have been ordered into quarantine by the local board of health of Portland.

The old story comes from Milan, Italy, that that city has just passed through a severe visitation of small-pox, which was virtually invited by the unsystematic and ineffective vaccination which has prevailed there, but that she is now taking energetic measures to put herself into a position to successfully resist other importations of the disease,—for a while.

Minneapolis, Minn., has lately been afflicted with an epidemic of so-called "winter cholera," and the State Board of Health is making an enquiry into the nature of the disease and its causes. This is not Asiatic cholera, but appears to be of the nature of simple diarrhœa and cholera morbus.

St. Paul, Minnesota, is interested in a garbage furnace, and its health department is making a move with reference to visiting the various cities that are taking care of their garbage in this way, for the purpose of investigating the matter.

The municipal board of health of Boston used, during the year 1887, disinfectants in the following quantities: corrosive sublimate, 2,250 pounds; chloride of lime, 37 casks; Lerned's powder, 18 barrels; copperas, 16 barrels; chloride of zinc, one barrel; phenyle, one barrel. They fumigated 4,189 rooms, using 16,500 pounds of sulphur.

The annual death rate in England in 1887 was 18.8 per 1000, being the lowest rate as yet recorded.

Some time ago a case of varioloid appeared at Cumberland Mills in the person of a young woman who worked in the rag-room in the paper mills. The nature of the malady was not recognized for some time and from this initial case five other cases at Cumberland Mills, one in Saccarappa and two in Deering have arisen. As a sufficiently long period has passed for nearly everybody who is known to have been exposed to develop small-pox, if they were going to have it, it seems improbable that there can be many more cases. A good work has been done by the new local boards of health. A full account of the outbreak will be given in the next number of the SANITARY INSPECTOR.

The following extracts from two letters received by same mail and enclosing payments for subscriptions are a sample of the kind words which come now and then to make us believe that the SANITARY INSPECTOR is doing a work which is of value and which is appreciated as such:

"I am going to try to get some of my neighbors to subscribe for it. In next to last number there was an article worth to them a year's subscription. —— ———, M. D."

"I consider it a very valuable little work, supplying a long felt want. Keep up the work. If this work of stamping out contagious diseases had been begun fifteen years ago this village would not have had to mourn the loss of some forty children during the epidemic of diphtheria in 1876 and 1877. Yours truly, — —— ——"

Poisonous Principle of Expired Air.

Prof. Brown-Sequard and Dr. Arsonval have discovered a toxic principle in expired air, which, when inoculated into dogs in doses of one milligram, causes dilatation of the pupils, marked diminution of respiratory movements, and paralysis of the extremities. In larger doses the animal always succumbs within a few hours. The poison as they have obtained it is an organic alkaloid, and not, as might

have been supposed, a microbe or rather a series of microbes. From these curious researches, the following conclusions may be deduced: 1. In confined air is found a volatile principle, most deadly in its effects, emanating from the lungs, and much more dangerous than the carbonic acid which is also met with in it. 2. Human breath, as well as that of animals, thus contains a poison which is most powerful. It may be added that Dr. Wurtz, son of the eminent chemist, has just found an identical alkaloid in the blood of certain animals.

A Clergyman on Small-pox.

The Rev. Dr. Dallinger, speaking with the double authority of a minister of religion and a man of science, has been saying a few words of good sound sense to Yorkshire people about the mockery of prayer to God for the abatement of small-pox, without the diligent use of all human means to the end. There cannot be a case of small-pox in a community without blame attaching either to the patient or to those responsible either as parents or as guardians of the public health. It is averred that men and women half recovered from the disease in Sheffield have been going about in public vehicles or to places of amusement. This is an outrageous breach equally of sanitary law and of the Scriptural law of consideration for others. Small-pox is a disease from which everyone may be absolutely protected by vaccination and revaccination, so that to have it is almost a crime. We have no right to ask the Almighty to do that which is perfectly within our own power.—*Lancet.*

The Cause of the Southern Cattle Plague.

The cause of the Southern cattle plague has for a long while been an important, but an unanswered question. Dr. Frank S. Billings, Director of the Patho-Biological Laboratory of the State University of Nebraska, claims that he has found the germ of the disease in the tissues of animals affected with this specific disease; that pure cultivations of this germ have been made in artificial media; that gophers, or ground squirrels have been inoculated with such cultivations, and have died from the effects; that the same germ has been found in their blood and tissues; and that pure cultures derived from this source, when inoculated into cattle, have reproduced in them Southern cattle plague. If these claims are substantiated, and a personal knowledge of the earnest methods of work which are characteristic of the claimant leads us to hope that they may be, the discovery will be likely to be one of great value to the cattle industry of this country, and one which will reflect much honor upon the discoverer.

Vaccination in Sheffield.

In Sheffield, England, for some months past, small-pox has been very prevalent, and the statistics of the epidemic show, as do the records of all such outbreaks, the very small danger of the vaccinated in comparison with that of the unvaccinated. Careful estimate shows that of the children under ten years of age in Sheffield the unvaccinated numbered about 5000, and the vaccinated about 95,000. Out of the 95,000 vaccinated there had been 189 attacks and two deaths; whereas out of the 5000 unvaccinated there had been 172 attacks and seventy deaths. And, to put the matter otherwise, it was shown that if all the Sheffield children under ten years had been unvaccinated there would have been 3277 attacks and 1330 deaths, or a mortality 600 times greater than that which has occurred; whereas, if all had been vaccinated the 189 attacks would only have been raised to some 200, and the two deaths could hardly have been exceeded.

Chicago's Garbage Crematory.

The garbage crematory which they have been building in Chicago is completed, and they have given it a preliminary trial. The following in regard to it is from the *Sanitary News:*

"The furnaces and buildings surrounding them, in fact, the crematory complete, cost but $7,000, and when one takes into consideration the great amount of teaming the work will dispense with, not to mention the incalculable value, from a sanitary point of view, it will soon pay for itself, if it proves the success it is expected to. Garbage will be hauled to this crematory from a radius of one and one-half miles, and after it has proved successful, others will be built, probably five in all. Thirty-six wagons are now being made for the special purpose of hauling the garbage. The capacity of the furnaces has not, as yet, been tested, but the inventor claims that they will burn anything put into them, and that a great deal can be put into them. While at the crematory we were treated to a cat and dog burning exhibition, which was very fine—that is, the ashes, as one of the party said. The furnaces have an excellent draught, and the little smoke that arose from the tall chimney was shot straight into the air for several feet, before being carried away by the rather stiff breeze, high over the buildings in the vicinity. There was no perceptible odor except such as arose from the garbage before it went into the furnace, which smell can be enjoyed at home, in the alley, in the back yard, or even on the sidewalk."

Important Facts about Scarlet Fever.

It is not generally known as it ought to be that the susceptibility to scarlet fever and most of the other exanthematous diseases diminishes with increasing age, and that, also, the chances for recovery are very greatly improved if the attack comes at a later, instead of at an earlier, age. The latter fact, the diminution of the death rate with increasing age, is shown anew by Dr. Tatham, Medical Health Officer of Salford, England, in the British Medical Journal.

"I have now before me carefully prepared statistics as to the mortality amongst 2,500 cases of scarlet fever, recently completed in Salford. The percentage fatality amongst these cases has been ascertained at the several ages from one year up to adult life, and the following is the result: Of 259 cases occurring within the first two years of life, 26 per cent. died; of 881 cases aged from two years to five, the fatality was 14 per cent.; in the next quinquennium, it was 7.5 per cent.; whilst amongst the cases occurring at all ages above ten years, the fatality did not exceed 3.7 per cent. It follows, therefore, that if, by careful isolation of infective persons, we can postpone the period of life at which a child is to have scarlet fever from the age of one or two years to some period after the fifth year, we reduce the risk to that child's life by more than two-thirds; whilst, by further postponing it beyond the tenth year, the risk is reduced to one-seventh of that to which the child would have been exposed had he contracted the disease in infancy."

Period of Isolation.

According to the rules laid down by the State Board of Health of Iowa, the period of isolation for the different contagious diseases should be as follows:

Scarlet Fever.—Six to eight weeks from the date of the rash, desquamation having completely ceased, and there being no appearance of sore throat.

Measles.—Three to four weeks, all cough and desquamation having ceased.

Small-pox.—Forty days.

Mumps.—Two to three weeks from commencement, all swelling having subsided.

Whooping Cough.—Six weeks from the commencement of whooping, provided the characteristic spasmodic cough and whooping have ceased.

These periods pretty nearly concur with those in the rules which have been laid down by the Section of Hygiene of the French Academy of Medicine, which are as follows:

For small-pox, scarlatina, and diphtheria, 40 days.

Chicken-pox, measles, mumps, 25 days.

Whooping cough, 30 days after the disappearance of the characteristic symptoms.

Typhoid Fever and Sewer Gas.

A short time ago there was a severe outbreak of typhoid fever in a Michigan state-prison at Jackson, and the fact is interesting that the first case which appeared there was in a prisoner brought from the Iron Mountain country, where an outbreak of typhoid fever occurred, an account of which was given in the last number of the SANITARY INSPECTOR. According to the *Sanitary News*, Dr. Vaughan has proved that the germ of typhoid fever may be conveyed by sewer gas, and gives an account of his discovery in the following words: "A committee from the State Board of Health was invited to make an investigation of the causes of the epidemic. The water-supply and milk-supply were first ruled out as possible vehicles by negative evidence. It was then thought that the defective condition of the sewers, combined with the insufficient supply of fresh air, was the most probable cause of the epidemic. The cases nearly all were from a distinct portion of the prison, and investigation proved that the soil pipe running from the hospital, and the house-drain, into which it entered, were defective, and were pouring sewer-air into that portion of the prison. Professor Vaughan took to his laboratory a sample of the air from within the soil-pipe, and has found within it the specific germ of typhoid fever.

How Infection May be Spread.

The inspector of nuisances for the Solihull Sanitary Authority lately reported to the board an instance of an outbreak of scarlet fever which he had traced to its source. He obtained a list of absentees from school, and, on investigating the cases, found in one house a girl desquamating from scarlet fever, while several children belonging to neighbors were playing about the house. A basket of washing had just been returned to a house where there was a large family. In another house he found three children with scarlet fever, with one in a state of desquamation attending the school. From here also a basket of

washing had been sent to a house with a family of children. In all, ten children were sent to the infectious hospital; one was treated at home. Wisely, the medical officer ordered the schools to be closed. Such ignorance as shown by the parents of the affected children is plainly culpable, and calls for prompt condemnation.—*Lancet.*

The following letter shows that we do not have to go across the water to find cases of carelessness of the kind which may cost others sickness and sometimes death. Such cases show very plainly the need of having every case of infectious disease promptly reported to the local board of health:

March 12, 1888.

Dear Doctor:—A few words in addition to the report which I send might be of interest as helping to better understand this new outbreak of scarlet fever which has been at work in this town and North Yarmouth. We had thought the epidemic under control, but it seems that a family in the remote part of Cumberland has been harboring the disease for several weeks, unknown to others and to the board of health. The cases were mild, and medical advice was not called. At the beginning of this term of school at Greeley Institute, the eldest boy, a lad of about sixteen years, came to school, boarding at home. Wednesday, the seventh of March, four days after the school began, the first case was taken sick; Thursday another, a seatmate of the lad mentioned, and Friday night a third. Yours, etc.,

C. T. MOULTON,
Sec. Board of Health of Cumberland.

The Doctor further writes under date of March 16th: "There has appeared one more case of scarlet fever from Greeley Institute. A lad about seventeen years of age was taken sick on the morning of the 14th, not having been at the school after the 12th. This case evidently came from the first influence, as he sat directly across the aisle from the boy who first brought the infection to the school. This is a case of second attack. This boy, together with his brother and sister, had scarlet fever three years ago, when we had an epidemic in the place. It was a well marked case of desquamation. It is now a very typical case of equal severity with others.

Two Cases of Trichinosis.

About the middle of last November as two boys aged respectively twenty and twelve years were engaged at their home in Windsor in cutting up two porkers preparatory to salting, they sliced off some of the lean meat of the tenderloin and ate it raw. About a week after-

ward, Dr. F. C. Perkins, of South China, was called to them, and, according to his description of the cases, found the following symptoms during the four weeks of his attendance on them.

The older boy was affected much more lightly than the younger; but the symptoms were almost the same, only not so severe. He was able to walk in four weeks after taking his bed. The following is the history of the severer case.

The symptoms were ushered in with sweating, vomiting, diarrhœa, and colicky pains. The diarrhœa lasted about four days; then complaint was made of soreness all over the bowels. Next, he began to have severe pains in the muscles of the back, legs, and arms, also in the chest, tongue and eyelids. The upper lids were swollen and "bagged" considerably. He complained of a numb feeling in the muscles affected, and the flesh was very sore. He could not put his tongue out of his mouth, and an effort to do so caused great suffering. He could not bear the least heat: it aggravated his trouble and made him very nervous. He lay with only a sheet over him for a number of days, although the weather was quite cold. The muscles of the legs and arms became contracted, so that extension occasioned great suffering. About the third week œdema of the face and lower extremities occurred, and gradually extended over the body. He had a hacking cough, and auscultation over the lungs showed the presence of capillary bronchitis. There was also a viscid, bloody-colored expectoration. About the fourth week he lost the use of his legs entirely. The temperature ranged from 103° to 104°. An examination, made February 13th, showed that he could walk or use his legs but very little. The ham-strings were contracted, as were also the biceps tendons. During the sickness there was no headache, tympanites, or stupor, but there was a mild delirium for a few days.

Samples of the suspected pork were brought to the office of the Secretary of the State Board of Health February 7th. Portions were brought from the "tenderloin" and the "sparerib" of both swine, one of which was a pig, and the other an old hog.

Under the microscope but four slides of the pig meat were examined, and on these no trichinæ were found. Of the meat of the older hog eighteen slides were examined, and trichinæ were found in all but three. Specimens which were picked out of their capsules under the microscope were found to be alive, and capable of uncoiling themselves and coiling themselves up again, after their three months pickling in brine.

Sewer Gas Poisoning.—II.

A common effect of sewer-gas poisoning is a condition of general weakness, and I am inclined to think that some cases of nervous prostration are due to this cause. Indeed, weakness, irritability, loss of appetite, dull headache, and a drowsiness are a group of symptoms which play a principal part in almost every form of disease due to sewer-gas poisoning; but there are some cases, such as the following, in which these symptoms are alone present and constitute the entire disease.

Case XVII.—Mrs. K., aged 55. The cold air box of the furnace in her house was connected indirectly with the drain. For several years she had suffered in the winter time from loss of appetite, diarrhœa, vertigo, drowsiness and great prostration. She was tired out on slight exertion, was greatly depressed, and every duty seemed a mountain in her path. She continued to grow weaker until she could scarcely walk. Her temperature was normal. Pulse 110. The urine was free from albumen. Although scarcely able to be out of her bed she was sent south and improved rapidly. In her absence the house was put in good sanitary condition, and after her return she continued to improve, and is now well.

Case XVIII.—Mrs. V., aged 60. The plumbing in her house was old, and was in very bad condition; there were a number of leaks in the soil-pipes. During the winter she has frequently had attacks of chilliness. In April she began to feel very weak and miserable, had no appetite, complained of dull headache and great drowsiness, she was much depressed and did not feel able to accomplish anything. At the same time that Mrs. V. suffered in this way her daughter became feverish and had a typical attack of typhoid fever. A servant in the house had a succession of sore throats and headaches during the whole winter. Mrs. V. went away from her house while it was being repaired and gradually regained her health and strength.

Case XIX.—Mr. T., aged 26, lived for a short time in a house the unsanitary condition of which was described under Case I. During the whole time that he was living in this house he felt weak and wretched, had a dull headache, no appetite, and was drowsy. He recovered very soon after leaving the house.

In all of these cases of general weakness the patients have complained of great drowsiness, and this, in my experience, is one of the first and most constant symptoms of sewer-gas poisoning. In the following case it was the only symptom.

Case XX.—Mrs. F., aged 60, in consequence of anxiety and worry got into a condition of great nervous exhaustion, and was greatly troubled by insomnia. In the midst of this condition she moved into a house, the plumbing of which was found to be in a very defective condition, allowing the escape of sewer-gas in all parts. As soon as this was discovered she was taken to another house, but during the five days that she remained in the house with defective plumbing, her obstinate insomnia disappeared and she slept not only during the night but also during the most of the day. When she left this house, however, her insomnia returned.

Cases XXI, XXII, XXIII, XXIV, are of "slow" fever, typhoid fever, and of diphtheria apparently caused by sewer-gas poisoning.

Not infrequently sewer-gas poisoning shows itself in diseases of the nervous system. The most common of the diseases thus produced is neuralgia, as can be seen from the following cases:

Case XXV.—Mrs. L., aged 30, slept in a middle room opening out of a bath-room. An examination of the plumbing showed that it was very old, and leaked in almost all parts, the bath-room being particularly defective. During five or six weeks she suffered from intense neuralgic pains, which commenced in the lumbar region and extended around into the groin and down the posterior and other outer surfaces of the thigh and legs. These pains recurred daily, and were so intense as not only to require morphia hypodermically, but they reduced the patient to a very low and precarious condition. She was also extremely weak, and had no appetite. When the trouble with the drain was discovered she was moved to another house. After she was taken to the other house there was no return of the pain, her appetite returned, and she quickly regained her strength. There could hardly be a more striking example of neuralgia due to sewer-gas poisoning than this one.

Case XXVI.—Mrs. T., aged 32, lives in a house in which the plumbing was found to be in an extremely defective condition. In the latter part of December she had an attack of fever, lasting three days, the evening temperature being 103.8° on one night and 103° on another. Even after the fever left her she continued to be weak, and to have no appetite. On the first of January she was attacked with severe neuralgia of the ninth intercostal nerve, which continued till the third week of January, when she went out of town. Early in February she returned to her house, and, on the second day, the pain

returned, and was accompanied by a slight attack of jaundice. She then moved into another house, and in a couple of days her neuralgia ceased, and in a week the jaundice disappeared also.

In all of these twenty-nine cases there was an escape of a large amount of sewer-gas into the air which the patient breathed, and at the time that each case was observed it seemed extremely probable that the sewer-gas was the cause of the disease. I have notes of a number of other cases of this class, but as they are not in all respects convincing, I have not reported them; and I would only say that it seems to me that phthisis, and also disbetes mellitus, may sometimes have their origin in sewer-gas poisoning.

From a consideration of these twenty-nine cases, we may conclude that it is probable that the following conditions may result from sewer-gas poisoning.

1. Vomiting and purging, either separately or combined.
2. A form of nephritis.
3. General debility, in some cases of which the heart is especially involved.
4. Fever, which is frequently accompanied by chills.
5. Sore throat, which is frequently of a diphtheritic character.
6. Neuralgia.

These conditions may occur separately, but are frequently combined, and it is especially common for the fever to be associated with the other forms of sewer-gas poisoning.

Finally, in cases of sewer-gas poisoning there is one group of symptoms which is almost always prominent, and these symptoms are: Loss of appetite, drowsiness, extreme prostration, and a dull, unpleasant feeling in the head; and, whenever this group of symptoms occurs, not as the result of an attack of acute disease, but as a chronic condition, we are justified in suspecting that the patient is exposed to sewer-gas infections.

Questions and Answers.

Would it be well to require that all similarly uncovered sink-drains shall be covered? Sec. of Local Board.

Ans. In regard to the sink drain of which you write and whether, in similar cases, it would be well for the board to order the drain covered, I hardly deem it well to advise you to adopt as a general

policy the requirement that all private sink drains shall be covered. I would certainly advise using your educational influence as far as possible to encourage householders to dispose of their sink drainage in such a way that it will not soak into the cellar or permeate the soi in the immediate vicinity of the dwelling, or return its gases of decomposition back within the house. The requirements of a plumbing arrangement to guard against these occurrences are a perfectly tight pipe leading outside the walls of the house and some little distance beyond, and communicating with a tight tile or other drain to carry the sewage to a safe distance from the house. These fixtures, of course, must be put beyond the reach of frost, and must be trapped safely just beneath the sink. In the case of many old wooden drains as we find them on the surface, or near the surface, with the waste pipe entirely untrapped, it would undoubtedly be more healthful for the house to leave the drains uncovered and freely exposed to the action of rain, sunshine, and the air, than it would be to have them covered and delivering their full volume of sewer gases back through the untrapped waste pipe.

To E. M. C. In regard to what precautions against carrying the contagion should be taken by the physician who is attending cases of diphtheria, I should say that, if possible, after his visit to the infected house he should change his clothing before going to another house. If it should be possible to do this, a light rubber coat buttoned closely would undoubtedly be of considerable use in preventing the infection from clinging to the clothing. The stay in the sick-room should not be prolonged unnecessarily. After leaving the sick-room, and if possible before leaving the house, the clothing and the person should receive a preliminary disinfection, which can be done in a few moments. The hands, face, and beard, and the hair of the head, should be washed in soap and warm water. Then from the pocket a sponge and phial of powdered and labelled corrosive sublimate should be pulled and enough of the corrosive sublimate poured into a little hot water in the bowl to make a solution of 1 : 500 or at least 1 : 1000. Stir until dissolved, as much as possible, and with the sponge wet in the solution and squeezed, not too dry, proceed to rub down carefully the whole surface of the outer clothing, the beard and the hair of the head, dipping and squeezing the sponge often. At home it is a very great convenience to have a light disinfecting closet in which a suit may be fumigated.

[Form 44.]

(Supplement to the Sanitary Inspector.)

DIPHTHERIA.

ITS PREVENTION AND RESTRICTION.

[REVISED EDITION.]

Issued by the State Board of Health of Maine.

Diphtheria is a contagious and infectious disease, attacking persons of all ages, but affecting children much more frequently than it does adults. It may be communicated from the sick to the well by means of persons, cups or other articles which pass from mouth to mouth, or through the medium of the air, or it may be spread by means of clothing.

So generally is diphtheria regarded as due to unsanitary conditions, that by common consent it is classed among the "filth diseases;" and when we find it arising apparently independently of sources of infection, spontaneously as it would seem, we may be pretty sure that something is wrong in the health conditions of the home where it is found.

The unsanitary conditions which seem to give rise to diphtheria may be in the direction of the food or water supply: the well may be too near the privy or cess-pool, or sink drain, or barnyard, and be polluted by soakage through the filthy soil; or the something wrong may be in the direction of the air supply: the sleeping rooms and living rooms are perhaps not ventilated, and the air is re-breathed and poisoned, or a wet and foul cellar is under the house, or sewer gas goes into the rooms from defective water-closets or other fixtures, or from sink drains, or privies, or cess-pools.

When once diphtheria has arisen, the law of simple contagion carries it to the rich and the poor, to the cleanly and the uncleanly, but not to all alike. Filth invites disease and gives its germs the most congenial soil in which to develop into pestilence; but cleanliness offers only barren ground for their development.

Diphtheria is a preventable disease. Proper preventive measures are almost invariably followed by the limitation of the disease to the first case or cases. **When diphtheria gets away from the primary cases and makes its escape upon the community, somebody is to blame.** The sooner we accept this as a sanitary maxim, the sooner we shall begin to do our duty as individuals and as communities.

PREVENTION.

Keep away from the sources of the contagion. Do not go where the disease is, if you can help it; and, above all, do not let your children go where it is. Permit no one to come to your home who has been where it is.

From the dwelling and its vicinity banish all sources of filth, whether of the ground, of the water, or of the air. The ground under and around the house, if not naturally dry, should be thoroughly and deeply drained.

Diphtheria does not come from far through the air, therefore do not shut up your house tightly, thinking thereby to shut out the disease. By so doing you shut *in* the poison of re-breathed air, which paves the way and makes it easy for the poison of diphtheria to claim your children. Let the sunshine in by day and the pure air both by day and night. When diphtheria is prevalent, avoid all crowded gatherings; especially keep children from such places.

What is apparently only a common sore throat in adults will sometimes give rise to an outbreak of diphtheria in children; therefore, in all cases of sore throat, prudence would dictate caution in using dishes which the patients have used. A kiss to a child under these circumstances may be the unconscious seal of the little one's death warrant.

When diphtheria is rife, keep from the children gum, jewsharps, harmonicas and other things which go from mouth to mouth.

Be sure that the drinking water and the milk are pure.

RESTRICTION.

As soon as it is found that a person has diphtheria, he should immediately be separated from the rest of the family and put into a sunny and well-ventilated room, preferably on the upper floor, and as disconnected as possible from other rooms, especially the living and sleeping rooms of children.

Before moving the patient into the room, all needless articles, such as carpets, contents of wardrobes, etc., which would catch the infection, should be removed.

No other person besides the nurse and necessary attendants should be permitted in the room, and they should take special precautions not to carry the infection. Their communication with the rest of the family should be as restricted as possible.

The secretary of the local board of health, or the health officer, should immediately be notified and should coöperate with the physician to keep the disease from spreading. Children and parents from

other houses should be warned; and, if they needlessly and obstinately persist in coming, they should be driven away.

Neither the nurse nor any other person should eat or drink anything in the sick room or anything which has been there. Food which the patient has left should be burned.

Cats and dogs should be kept from the sick chamber, or better, out of the house, for their fur can easily carry the infection. These animals, as well as some others, sometimes have diphtheria, and communicate it to children.

The dishes which the patient uses should not be used by others, or washed with other dishes. They should be washed by themselves in boiling-hot water.

The utmost care must be taken that the discharges from the mouth, throat and nose do not soil the room or its furnishings. These discharges should be received on pieces of cloth and then burned. If this cannot be done they should be thoroughly disinfected with Solution C, (four ounces to a gallon of water) or Solution E, followed by boiling. (See page 4.)

The discharges from the kidneys and bowels should be liberally treated with Solution A, Solution B or Solution C, and not poured into the privy-vault, but buried, if possible, 200 feet or more from dwelling-houses and water supply.

The bed-and-body-clothing should not be mixed with the family wash, but should be put into a tubful of Solution C, or Solution E, until ready to boil.

No person from a house where there is diphtheria should go into public assemblies, such as schools, churches, or concerts.

Persons who have had diphtheria should not mingle with the public for some time after the last trace of the disease has left the throat and nose, and then not until they and all their clothing have been thoroughly washed and disinfected.

In case of death the body should be enclosed in a sheet thoroughly wet in Solution A, Solution C (eight ounces to the gallon of water), or Solution E, and put into a tight coffin, which should not afterward be opened. The funeral should be strictly private, and in no case should children be permitted to be present.

When the room is vacated after recovery or death, disinfect it by using the sulphur fumigation (See page 4); then wash all surfaces with Solution A, Solution B, one-half strength, or with Solution C (four ounces to one gallon of water), and afterwards with soap and hot water; finally throw open the doors and windows, and ventilate thoroughly.

DISINFECTANTS.

SOLUTION A.—For excreta, privy vault, woodwork and other surfaces.

SOLUTION B.—For excreta, privy vaults.

SOLUTION C.—For clothing, the hands, excreta, vaults, furniture and woodwork.

SOLUTION D.—For the person, the hands.

SOLUTION E.—For clothing, the hands, the person, excreta.

BOILING.—For clothing.—SULPHUR FUMIGATION.—For use only where liquid disinfectants cannot be used or to supplement other methods.

SOLUTION A.

Chloride of Lime,	6 ounces.
Water,	1 gallon.

Mix. Cost about three cents, or seventy-five cents a barrel. This is about a three per cent. solution. (Decolorizes and destroys fabrics.)

SOLUTION B. *"Purple Solution."*

Corrosive Sublimate,	2 drachms.
Permanganate of Potash,	2 drachms.
Water,	1 gallon.

Mix and dissolve. Label, *Poison!* Cost, two or three cents a gallon, when the chemicals are bought by the pound. (Stains fabrics, etc.)

The permanganate of potassium in this solution is used to give it color as a precaution against mistakes. It also, in this quality, increases the deodorizing qualities of the solution. This is approximately a 1:500 solution of the sublimate; therefore, mixed with an equal quantity of water or liquids to be disinfected, it gives us a 1:1000 mixture. One ounce of this solution contains very nearly one grain of the corrosive sublimate.

SOLUTION C. *"Blue Solution."*

Corrosive Sublimate,	4 ounces.
Sulphate of Copper,	1 pound.
Water,	1 gallon.

Mix and dissolve. Label, *Poison!*

This is sixteen times stronger than solution B, and is intended as a standard solution from which, by dilution with water, a solution of the proper strength for use may be made. To make from it a solution of the proportion of

1:500, add 8 ozs. to 1 gallon of water.
1:1000, add 4 ozs. to 1 gallon of water.
1:2000, add 2 ozs. to 1 gallon of water.

SOLUTION D.

Labarraque's Solution,	1 pint.
Water,	1 gallon.

Mix. Cost about twenty-five cents.

SOLUTION E.

Carbolic Acid, (90 per cent.)	7 ounces.
Water,	1 gallon.

Mix. This is approximately a five per cent. solution, or in the proportion of 1:21.

Sulphur Fumigation. To use this effectively three pounds of sulphur should be burned in a room ten feet square. Every opening into the room, flues, doors, windows cracks and crevices, must be closed, except the door by which the disinfector is to escape. The sulphur is to be burned in an iron kettle or other vessel set in a tub containing a little water to guard against fire. Ignite the sulphur with a few live coals or with a little alcohol or kerosene and a match. Leave the room quickly, for the fumes are highly poisonous when breathed, and close the door tightly. Let the room remain closed twenty-four hours or more. Then air thoroughly for several days.

Boiling for at least half an hour is a sure way to destroy infection. Immersion in Solution C, one part to two or three of water, or in Solution E, one-half strength, will lessen the danger from infected clothing until it can be boiled.

THE

SANITARY INSPECTOR.

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Sanitary Notes.

Each local board of health should remind the municipal officers of its town to fill the vacancy which has occurred by the expiration of the term of office of the one-year member, if the municipal board has not already done this.

Will the secretary of each local board of health report to this office, its election of officers for the ensuing year as soon as the meeting for that purpose is held?

On account of the pressure of work in the office it will happen, perhaps somewhat frequently, that the publication of the Inspector will be delayed a little as happens this month. When possible, however, each issue will be mailed within the month which it represents.

Whether one lives in the city or in the country, so long as he lives in a house, some idea of the a, b, c's of house drainage is a little knowledge which is not a dangerous thing; but it is risky to do without it. We would therefore urge to a careful reading of the interesting article on this subject which is begun in this number of the INSPECTOR.

The State of Ohio now has a law just passed providing for the establishment of local boards of health.

The small unvaccinated fraction of the London child population sent 238 patients to the hospital, while the great vaccinated whole sent only 65.

Dr. Gibier, who was sent from Paris to Rio Janerio to investigate the germ which Dr. Domingos Freire claims to be distinctive of yellow fever, denies the existence of this germ.

Whooping cough has recently been added in France to the official list of contagious diseases. Pupils affected with small-pox, scarlatina, measles, mumps, diphtheria or whooping cough are to be excluded from school and rigidly isolated from their fellows.

Dr. Ransome, at the last meeting of the Sanitary Institute of Great Britain, said: "I think it may be regarded as fully proved that the breathing of air rendered foul by previous respiration is one of the conditions required to enable the bacillus of tubercle to take root and to grow in the lungs. Re-breathing breathed air is a great and common evil."

At the end of a circular on small-pox lately issued by the State Board of Health of Connecticut, we find the following excellent admonition in regard to disinfectants, given in good strong English, emphasized with heavy type: "There are a large number of proprietary 'disinfectants,' so-called, in the market. Most of them are simply deodorizers or antisepties, of perhaps some value to stop a stink, but are entirely untrustworthy for disinfectant purposes."

In 1870 Calcutta ceased to replenish its drinking tanks from the river, which was then the chief receptacle of the filth of the city, and supplied itself with a more efficient system of water-works and sewerage. The cholera mortality at once fell so that the death rate from this disease for the seven following years was only thirty-one per cent of what in had been before.

Dr. Hunt, health officer of the city of Utica, N. Y., says that unquestionably the cause of nine-tenths of the cases of diphtheria reported in that city last season was sewer-gas. His opinion was founded upon the fact that in most of the houses inspected where diphtheria existed, the house drainage was so defective as to readily permit the return of gas from the main street sewer into the kitchen.

The Japanese Sanitary Association, which has 4,700 members, was founded in 1883, and now has twenty-eight branches in different parts of Japan. At the annual meeting of the association at Tokio, in May, 1887, there were 20,000 visitors to the hygienic exhibition.

For some reason or other small-pox this year is showing a tendency to extend itself unusually both in this country and abroad. In conformity with the agreement entered into at the conference of the

State boards of health, notifications have lately come thick and fast of outbreaks of small-pox. These notifications have come from States north, south, east and west. Boston has a few cases, Philadelphia has over sixty cases, New York seventy-nine at last reports and Brooklyn quite a large number. In view of these facts we would urge the local boards of health to be on the alert, for the disease is not so very unlikely to appear in any of our towns.

The meeting of the National Conference of the State boards of health will take place in Cincinnati, May 4th.

Results of Good Water in Naples.

Will Carleton, writing from Naples, says it is one of the most beautiful cities of Italy, and the dirtiest. He speaks of its special cholera graveyard where already twenty-five thousand victims of that disease are laid away, and wonders that the city does not bring forth every disease of which filth is the father. In spite of these general unsanitary conditions we learn from other sources that the new water supply has very strikingly diminished the mortality from typhoid fever at least. The number of typhoid fever cases received into the hospital during the three years since the introduction of the new water has been only twenty-seven per cent of the number which were admitted in the three years just before its introduction.

Disinfectants in Cases of Infectious Diseases.

The best way to disinfect a house is by washing the walls and furniture with a one one-thousandth solution of sublimate, and then with soap and water. Afterward, it should be freely ventilated. The sick-room should be thoroughly ventilated, and the towels, bed-linen, etc., washed in a one two-thousandth solution of sublimate before they are used again. Wagons of transportation should be disinfected after each time of use. All attendants should wash hands, nails, beard and hair with a five per cent solution of carbolic acid, or a one two-thousandth solution of sublimate. Food should not be kept in a sick-room.—*Journal of Pediatrics.*

A School Epidemic.

According to *The Monthly Sanitary Record*, it is this time out in a country school district in Ohio that somebody has been to blame for poisoning a well and creating a typhoid fever epidemic.

A Mrs. Michener had typhoid fever, and no pains were taken to protect their shallow well against the contaminating influences which were brought to bear upon it by throwing out around it the undisinfected dejecta of the patients and the wastes from the household. All of the next twenty cases following the outbreak in this family were in school children who obtained their drinking water from this well.

Diphtheria from Simple (?) Sore Throat.

A correspondent from one of our Maine towns gives the following interesting account of how a diphtheritic outbreak seemed to have had its origin in a case of mild sore throat:

On the 2d of February last I was hastily summoned to a child of six years with sore throat, which on examination was found to be diphtheria. The family lives at some distance from neighbors and for the past two weeks had not been away from home. Careful inquiry developed the fact that a young man had passed the evening with the family nine days previous, and that my patient had sat in his lap quite a portion of his call. Further inquiry developed that he had been sick about four weeks before with sore throat, in Bangor; that he returned home in company with another young man, who also had sore throat and communicated it to four or five of his brothers and sisters, who had sore throats, which were seen by a physician, but not recognized as diphtheria. The second young man visited a near school, sitting an hour in a seat with a younger boy who contracted, about nine days later, malignant diphtheria and died. From the school-room he visited a house in which dwelt a family of three, a child of five years and his parents. The child took the disease in a severe form and after much suffering and anxiety it passed the crisis and is living.

Careful separation and proper sanitary measures were adopted and a further spread of the disease was prevented.

Our Small-Pox Outbreak.

In our last issue we referred to the outbreak of small-pox, which had its origin at Cumberland Mills, and which, when first reported, bid fair to become more extensive than it did in fact. We are now able to give what we hope may be the history of the whole outbreak.

The first cases occurred in a house owned by a Mr. Washburn, at Cumberland Mills. Some time in December last, Mr. and Mrs. Washburn and their one child, a daughter of ten years, went to

another town on a visit. They left in charge of their house, and residing in it, a young man by the name of Harriman, with his wife and a child two or three years old. The Washburns returned to their home Jan. 24th, and found Mrs. Harriman ill with what the attending physician called chicken-pox. Mrs. Harriman worked in the rag-room of the Cumberland Paper Mills, and had become sick and left the mill Jan. 21st. The northern half of the room where she worked is occupied by tables, upon which, from January 2nd to February 2nd, only rags of the kind known as "English whites," or "English outshots" were worked; and the southern part of the room is filled with tables, upon which only Japanese rags had been handled. Mrs. Harriman's table, at which she had always worked, was in the extreme northern end of the room. For the information of our readers outside of the State, we will say that Cumberland Mills and Saccarappa are two manufacturing villages in the town of Westbrook.

Two weeks after Mrs. Harriman became sick, Mr. Harriman was attacked; two weeks later, their child sickened; and still fifteen days later, March 7th, the Washburn girl fell ill.

The cases so far, all in the same house, had been mild, and all went by the name of chicken-pox. Mr. and Mrs. Harriman had both been vaccinated, but not recently. The children had never been vaccinated, but the disease was nevertheless mild, especially in the case of the Harriman child. Mr. and Mrs. Washburn bear the marks of successful vaccinations made two years ago, and both escaped without contracting the disease.

March 12th, a woman became sick who lived near the Washburn house, and who was in and out freely during the sickness of the inmates. She had confluent small-pox. Of the cases so far mentioned, only the initial case can be supposed to have been contracted from the rags, as none of the patients had been employed in the mill, except Mrs. Harriman. In regard to the two cases next to be mentioned, there is some doubt as to whether the infection was derived directly from the rags or not.

Millie Ricker, who worked in the rag-room, was attacked March 6th, and died on the 10th. The diagnosis in her case was malignant scarlet fever; and the opinion of the attending physician was confirmed, the evening before her death, by three consulting physicians. It was said that all the usual characteristic features of the small-pox eruption were absent, and that there was present only a scarlatiniform eruption, with some purpuric spots.

Miss Varney, who worked in the rag-room, was attacked with small-pox March 12th. She had the disease in a moderately severe form.

The following facts are interesting as bearing upon the question of whether more than the primary case had its origin directly from the rags:

After Mrs. Harriman's slight illness, she returned to the mill, and worked from February 6th until the 10th of the same month. She then left to take care of her husband, and remained out until the 23rd of February, when she again came in, and worked until the 25th. When she returned on the 23rd, she was transferred, for that day only, to a table in the south half of the rag-room, where Miss Ricker and Miss Varney worked.

When the State Board was notified of the existence of small-pox at Cumberland Mills, the first three cases had recovered, three cases had just been quarantined by the local board of health of Westbrook, and the remains of the so-called scarlet-fever patient had been transported forty miles to Brownfield and interred, and had been accompanied by the sister of the deceased, who had worked with her in the mill and had roomed with her.

Ten days after the death of Millie Ricker, Carrie Ricker became sick and died, as her sister had, after only four days of sickness, and of what her attending physician also called malignant scarlet fever. In this case there were no purpuric spots, and, according to the description which was given, the rash was very much like that which characterizes scarlet fever, and lacked all the distinctive appearances of the ordinary small-pox eruption. Neither of these girls had had scarlet fever or been vaccinated.

In spite of the unanimity of the medical attendants in regard to the two cases, there were certain features which called for a strong precautionary warning to the local boards of health immediately concerned, and this action the results justified. In addition to the fact that the first of the two so-called scarlet fever cases had worked in the mill, the period of invasion was longer than is characteristic of scarlet fever, especially of the malignant forms of the disease; and in the second case, both the period of incubation and that of invasion corresponded more nearly with those of small-pox.

Ten days after the consultation on the first of these two cases, and exactly on the same day when the second of the sisters was attacked, one of the consulting physicians came down with varioloid. Later, the man who kept the boarding-house where these girls roomed had

varioloid, contracted presumably from the bedding, which he took care of after the fatal termination of the first case.

But another case in Brownfield settled beyond cavil the question of the nature of these doubtful cases. A brother of the Ricker girls, a boy of fourteen or fifteen years of age, was taken April 4th, twelve days after the death of the second sister, with small-pox in an unmistakable form. This boy had been vaccinated, but unsuccessfully, several times immediately after the death of the sister who died at Cumberland Mills.

Two cases occurred in Deering, among relatives of the Harrimans, who visited them before the nature of their malady was known.

One other case presumably varioloid, but of somewhat questionable character, on account of the rather late stage at which it was first seen by a physician, occurred at the village of Saccarappa. This patient had not been exposed to the small-pox infection, excepting through the possibility of its conveyance in the clothing of some of her associates.

The value of vaccination was strikingly shown in the case of a young woman, a room-mate, who refused to leave Millie Ricker, but stayed with her through her sickness, acted as her nurse, and was clasped about the neck by the arms of the expiring girl, at the moment of death. She escaped unharmed. She was vaccinated successfully two years ago.

In this connection, it is a pleasure to bear testimony to the efficient and faithful work which has been done by the new local boards of health. Apparently everything was ready for a first-class epidemic in our midst, but by the prompt isolation of the sick and those who had been exposed, free vaccination and disinfection, the danger of that has been averted.

House Plumbing and Drainage.—I.

By E. C. Jordan, C. E., Member State Board of Health.

[Taken from the article on Motives and Methods for Sewering Cities, Village Towns, and Summer Resorts, and for Domestic Sanitary Improvements, Plumbing, &c., &c.]

With the advent of a water supply to a village or city, the tinkers or "tin-knockers" become plumbers. The man who can join lead pipe together is in demand. Tin and galvanized iron pipe is made to do duty as conduits for sewage above ground and a wood or stone box drains, or several lengths, *if they are particular?* of unjointed 12″ sewer pipe are laid through the cellar and out into the street. For

fixtures in such places you will find pan closets and spiral washing hoppers, and such other abandoned affairs as the irresponsible dealers in plumbing supplies of older cities have been able to work off. The intelligent plumber, if one was there, claims, when bitter experience incident to such work educates the public how they have been outraged by him, that competition and the public ignorance of what was proper, obliged him to lower the standard of his work and methods, if he cared for patronage. A safe enjoyment of the benefits and conveniences of a plumbed house can only be had by following certain simple fundamental rules, which may be briefly stated as follows. [See figure 10]:

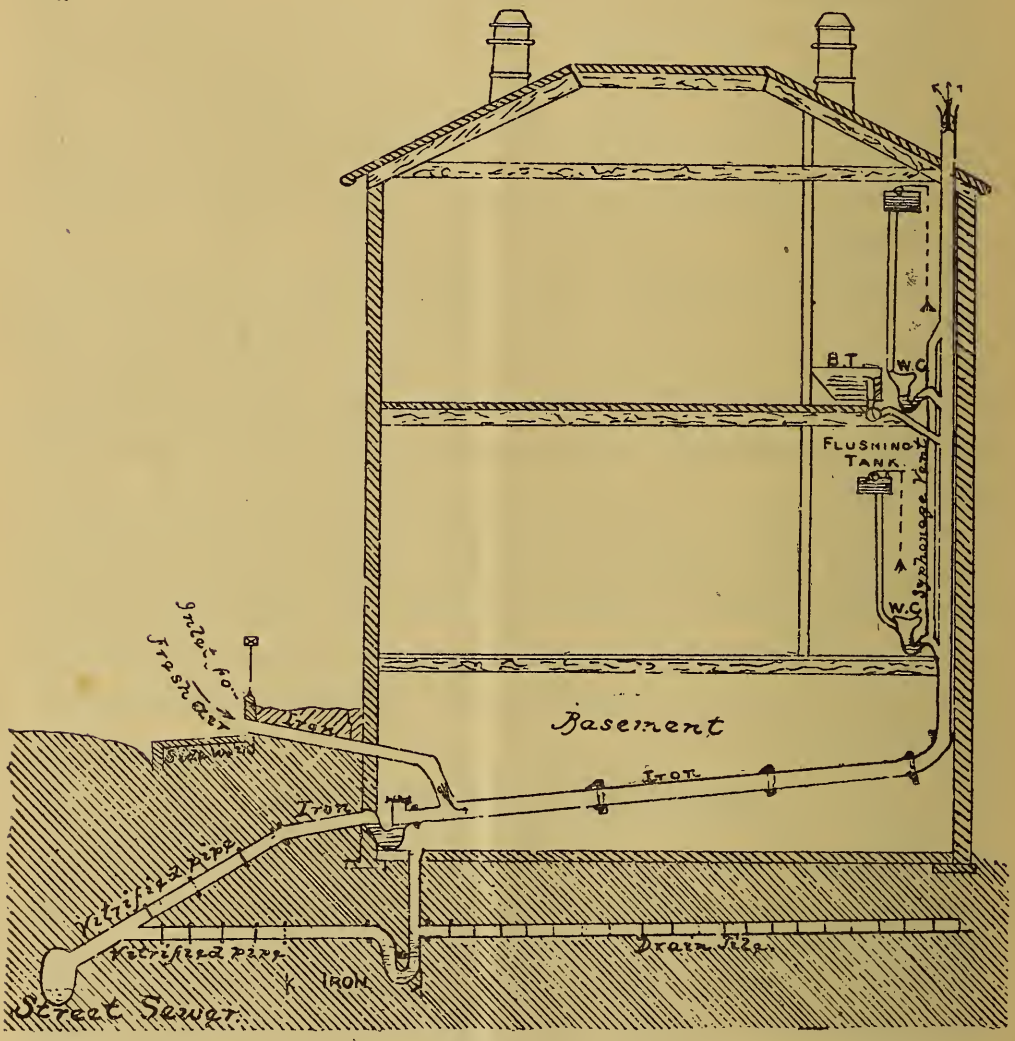

Fig. 10.

Extra heavy iron soil pipe (4″ in diameter being sufficient for a fairly large house) should start from a point five or six feet outside the house, and extend full size through and out of the top of the house.

Place no patent cowl on the top—they get clogged with ice and snow and defeat the end desired. There should be a trap on the soil pipe against the street sewer gas, and there should be a fresh air inlet on the house side of this trap, care being taken in its location as against the occasional downward draft and against its liability to freeze the adjacent traps if the connection is too direct. Fixtures, as they are connected with the soil pipe, should be separately and independently trapped, and the system of piping should not be concealed behind a covering that is even easily removed, or in niches, but be open to view at all times and in all the details possible. By such an arrrangement the growth of an imperfection is detected and checked, while on the contrary if the plumbing is covered in, the discovery of defects are rarely made until sickness suggests the hunt.

Figure 10 represents, in a measure, the application of the rule, and as this article is intended more especially for the inhabitants of the cities newly enjoying the opportunities of water supply and sewerage, I wish to impress the fact that the standard herein set cannot be lowered. Do not for a moment suppose that proper economy can be practiced by ending the soil pipe at the water closet.

Its extension through the roof and its open end are the conditions under which water in the traps to our various fixtures can be maintained as a barrier against the entrance of sewer gas, which when expanding or acting under pressure caused in the ordinary use of water-closets and in many other ways, forces itself through the water seals of adjacent traps unless it has a free outlet at the top of the house. By means of the fresh air inlet a current of fresh air is kept passing in at the foot and out of the top of the soil pipe, and this operates to prevent the formation of gases, and keep all liability to trouble reduced to a minimum. Another feature upon Figure 10 to which I wish to call your attention is that of cellar floor and subsoil drainage. In a village town, an isolated dwelling that is situated high enough to have its cellar and subsoil drain flow out upon the surface of the ground, should never connect those drains with the sewerage system of the house or street. But such conditions are comparatively rare, and usually we are obliged to connect such drains with the sewer. It should be accomplished as shown in Figure 10, by a trap with a seal 8″ or 10″ deep at the least. A shallow seal trap is very liable to evaporate during a period of drouth in the summer or owing to furnace heat in the winter, and thereby permits the sewer gas to be laid on to the house.

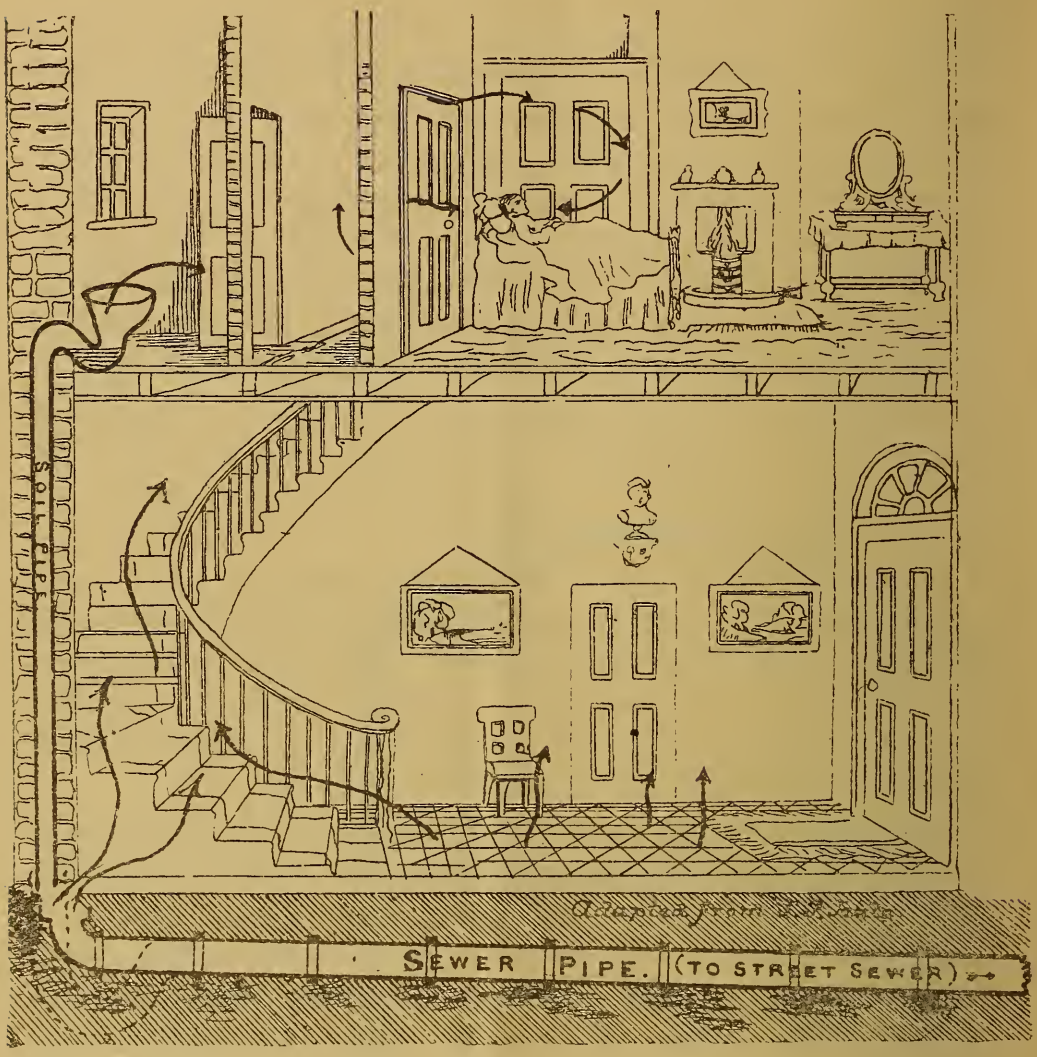

FIG. 11.

Figures 11 and 12 represent the class of defects (avoided in Figure 10) referred to above, namely :—

First. Leaky joints of short lenghts of sewer pipe (not iron) under the basement floor.

Second. The not unusual bad or broken connection between the iron soil pipe and the sewer pipe in the niche in the wall.

Third. The passage of gas through the water seal of a W. C., when soil pipe is not extended through the roof.

(Under the *exact* conditions shown in Figure 11 there would not be much tendency in the gas to go through the seal of the W. C., because it is represented as escaping more readily elsewhere, but with better conditions below stairs a worse one would be above.)

Fourth. In Figure 12 sewer gas in the cellar owing to evaporation of water seal in a badly formed shallow trap.

The dotted lines under the cellar floor in Fig. 12, showing subsoil drainage and a deep seal trap, is the method suggested in remarks under Fig. 10, of avoiding the liability of illness incident to the presence of sewer-gas under the old and represented conditions.

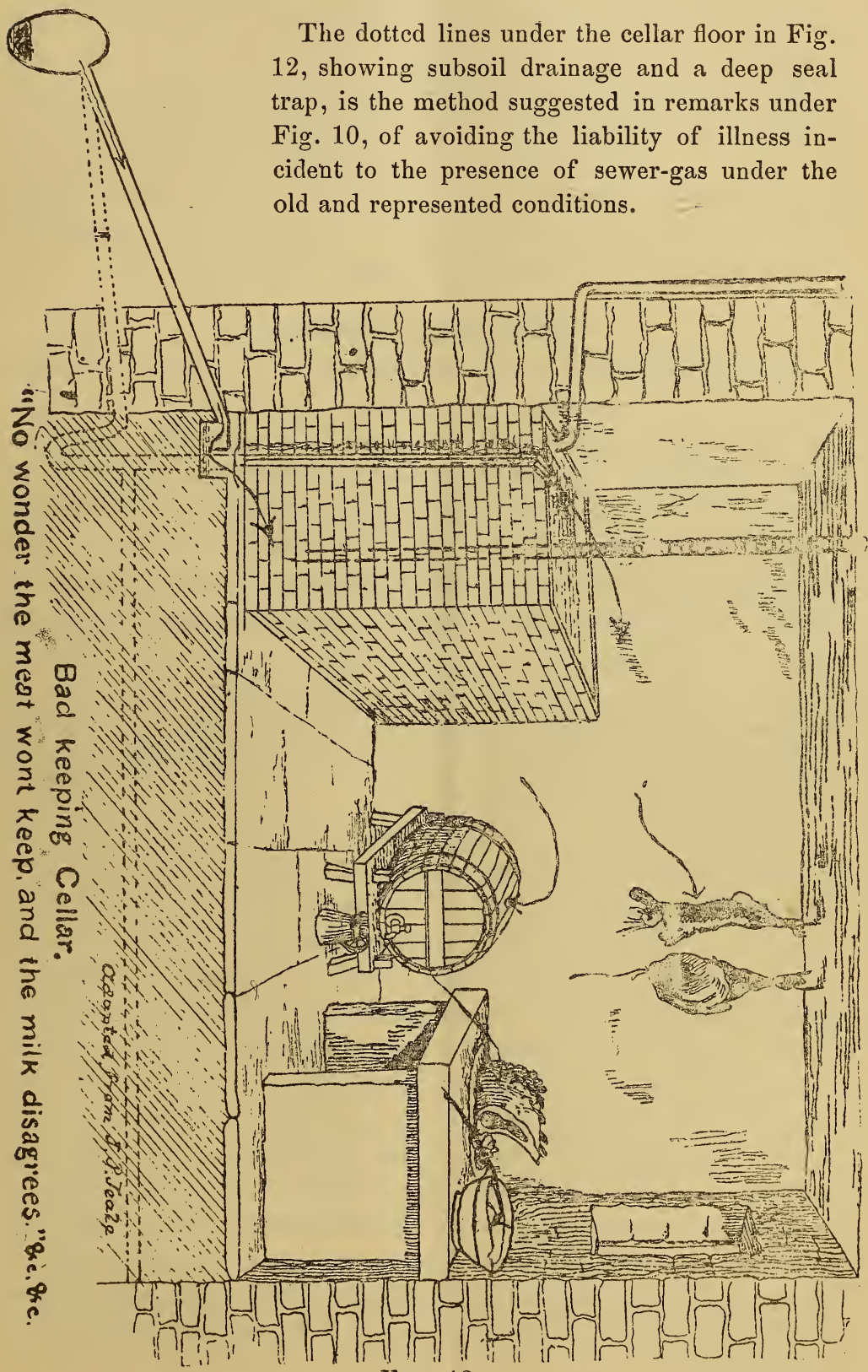

FIG. 12.

Saccharin.

Chemistry has lately succeeded in producing a substance which, although in its composition it bears not the least relationship to sugar, exceeds it about 280 fold in sweetness. When one part of this substance is dissolved in 70,000 parts of distilled water, the solution still tastes sweet, while one part of sugar is capable of imparting to only 250 parts of water a sweetness which is perceptible to the taste. The term by which the German chemists designate this body is *orthosulfaminvenzoesaureanhydrid*, but fortunately for our maxillary bones they permit the rank and file of us to call it *saccharin*.

Typhoid Fever Discussion.

At a late meeting of the medical society of the county of Kings, New York, an interesting discussion on typhoid fever took place. Dr. Raymond, referring to the prevalence of this disease in Brooklyn in 1885, said: "A case would break out in one house and in two or three weeks it would appear in the adjoining houses; and in almost every instance during the investigation, which is the basis for that statement (there were some fifteen hundred houses examined)—in almost every instance where a case of typhoid fever was found in a house, I think without exception, there was a condition of plumbing which would account for the entrance of sewer-gas, so that if the air of that particular sewer was infected with typhoid fever, we could understand how it might find its way into the house, the sewer air serving as a carrier of the germ."

Dr. Bartley said: "I have seen cases of typhoid fever where the attending physician made no attempt whatever to disinfect the discharges; and it seems to me, in the light of evidence that Dr. Raymond has brought forward, it is almost criminal to pour those discharges into the sewer and thus infect it. I had last fall a case from such a source, where the physician who treated the case diagnosed it as what is ordinarily called typho-malarial fever. There were three cases developed in one house below that on the side of a hill, where the plumbing was known to be very bad and afterwards taken out and replaced. In one or two houses between where these occurred and where the first occurred, where the plumbing had recently been entirely renovated, no cases occurred, but cases did occur about the same time in the house below. I think that the matter of disinfecting the discharges is so important that it ought to be brought to the attention of physicians, because I do not think they really appreciate it."

THE

SANITARY INSPECTOR.

VOL. 1, NO. 11. MAY, 1888. 25 CENTS A YEAR.

Sanitary Notes.

If the mail matter for any local board is not directed to the right post office, will the secretary of the board please notify this office?

In accordance with the expressed wishes of subscribers, who think *The Sanitary Inspector* is worth preserving in a bound form, an index will be prepared to accompany the last number of the volume.

As a sanitary measure in Madrid, the abolition of gas in the theatres and the universal substitution of the electric light has been decreed.

A case of fatal glanders in the human subject, which has recently occurred at San Jose, California, emphasizes anew the danger which always threatens persons who have anything to do with animals suffering with that disease.

A chair of sanitary engineering, believed to be the only one in the world, has been established in the Imperial University of Japan.

Oh, the cannibals! Somebody up in Lewiston wanted an emetic for a child and wrote to the druggist: "Please send ipecac enough to throw up a four-year-old girl."

A little over a year ago, Dr. Sternberg was sent by this government to Brazil and Mexico, to investigate the claims of Drs. Freire and Carmona, in regard to yellow fever inoculations. He was ordered to return to this country, before he had satisfactorily finished his observations; but his conclusions, which he has been permitted to make public in advance of his published report, are unfavorable to the claims of these yellow-fever inoculators.

The following list includes the names of all of the towns in the State in which, at the end of last year there was a failure to organize a local board of health, in accordance with the requirements of the law: Albany, Amity, Appleton, Aurora, Brookton, Canton, Clifton, Deblois, Eustis, Fort Kent, Frenchville, Grafton, Grand Isle, Hersey, Jackson, Kingman, Kossuth, Lincoln, Lovell, Ludlow, Lyman, Otisfield, Passadumkeag, Perry, Sebec, Standish, Waltham, West Bath. Of these Albany, Lincoln, Otisfield and Standish have lately organized, and thus, at the present time, 405 towns have a local board of health, and only 24 have not.

Water Analysis.

To Local Boards of Health and Physicians who wish to send samples for analysis:

Communicate with this office before sending, unless some special reason makes delay undesirable. Directions for taking the sample, with a bottle to contain it, will then be sent from this office. A two-ounce phialful, even if chemistry is an exact science, will not do, nor will half a pint, nor a pint. Two quarts should be sent. Half the samples received without previous notification are worthless on account of insufficient quantity, or want of care in collecting them, or in cleansing the bottle, or from other cause.

Another reason for notifying this office before sending the samples is that it is always desirable to have the analyses made as soon as possible after they are bottled, and we are liable to have on hand at any time several days' or a week's work in the laboratory, together with the general work of the office, special work, reports to write, and this journal to prepare monthly.

Malaria News.

An item in one of our western medical journals says that malaria has become very prevalent in Maine of late years. One of our Maine physicians told us of a case, which he treated some years ago, which resembled intermittent fever; but we shall wait for at least the first undoubted case of malarial disease to originate on our soil, before we believe this curious announcement, which is not creditable even to the imagination of its author.

Yellow Fever in Florida.

Florida is one of the four or five states which is without a board of health and she has taken no measures to exclude or restrict infectious diseases. It now transpires that the yellow fever which prevailed

there last season has not been annihilated by the winter, but remains in a milder form to have its death dealing qualities intensified by the approach of warm weather. This is not a very comforting piece of news to the neighboring states, and at the recent Conference of State Boards of Health a resolution was passed urging that all the adjoining states quarantine against Florida. The loss in her business prosperity and particularly from the absence of the many people who will cease to regard the peninsula as a safe place, even for a winter residence, may at last convince that state of her suicidal policy.

Disinfecting the Dog.

In one of our Maine towns during a localized outbreak of diphtheria as paterfamilias was sprinkling his garbage heaps and everything else with a solution of chloride of lime, it occurred to him that, if it is good for everything else, why will it not be good for the dog? Therefore Jumbo, chained in the shed which the owner was disinfecting, received a liberal sousing from the two-gallon watering pot in spite of his yelping and spluttering. A few days after this the owner said he had been obliged to kill the dog, for he had undoubtedly taken diphtheria as his hair all began to come out.

N. B. When using disinfectants remember the caution which is given that "Solution A." is injurious to clothing whether it is the coat which you wear on your back or that which your pet cur has on his.

School Baths.

Gottingen, Frankfort, Mayence, and other German cities are introducing baths in connection with the schools with good results. According to the *Gesundheits-Ingenieur*, a movement of this kind in the first-mentioned city met with some opposition on the part of the parents and children; but very soon the baths were appreciated and universally liked. This is an innovation which some of our city schools, which have a little spare basement room and steam heating, could indulge in without so very much cost.

A Straw.

In referring to a case of diphtheria, which occurred in Sidney in April, Dr. Bessey, the secretary of the local board, said:

"This case seems to illustrate the fact that sometimes what passes for common sore throat is a mild form of diphtheria. A young lady in

Oakland had severe sore throat, but refused, at the solicitation of friends, to call a physician. Her father, however, got some medicine from a physician for her.

Three weeks later she visited the family of Mr. ——, in Sidney, and slept with their little six-year-old daughter, who had had at three years of age an attack of diphtheria, and is subject to severe attacks of tonsillitis. In five days after the visitor came, the daughter was attacked with typical diphtheria. This case by itself is of little importance, as the visit and attack may have been a mere coincidence; yet an accumulation of such cases will help to throw light on the subject of contagion in diphtheria."

Maine as a Summer Resort.

As a vast and varied summer resort this State has much at stake, and success depends in a considerable degree upon our management of certain sanitary questions, which are before us. With the insight which we now have into the causation of infectious and epidemic diseases, we do not have to attain an extreme moral elevation, before perceiving that carelessness in commingling infection and susceptible individuals, is akin to mixing arsenic with other people's food or putting strychnine into their whiskey bottles. We have no right to force contagion upon those who do not wish to receive it, or upon the unsuspecting, who are not aware of the danger which may be awaiting. The common law has long recognized this truth, and so have legislative enactments elsewhere. Our State law somewhat tardily affirms the same, and provides for the prompt notification to the local board of cases of the infectious diseases, for indicating to the public the danger points, by placarding or otherwise marking infected houses, and for the carrying out of certain other precautionary measures to prevent the spreading of the infection.

It is very important that this work be done in accordance with the spirit and the letter of the law. Not only our own people but every summer visitor has a right to know where danger is, and to be insured a reasonable degree of protection from it. The *Lewiston Journal*, in a recent issue, sensibly remarks that "anything like malaria or contagious disease is more fatal to the holiday business of a place than to its immediate victims. One of the chief reasons why Maine has grown in favor so rapidly for the past few years is the absence of malaria in all its forms, and the health-giving breezes of its coast and hill country." We are quite sure that another reason why Maine

will be preferred by many fathers, as a summer home for their families, is because the law establishes a local board of health in every town, and that the infectious diseases are prevented and restricted as far as can be, but are not hidden away, the doors of infected houses being marked with a placard, bearing the name of the disease which is within.

Two Outbreaks of Diphtheria by Importation.

There is no more important subject of study, for those who are interested in sanitary matters in our northern states, than diphtheria and the laws or circumstances in accordance with which outbreaks of this disease arise. Particularly interesting are the accounts of the first invasion of a country or a district by this disease. The last report of the State Board of Health of Wisconsin gives an account of two small outbreaks of this kind, which were due to the importation of the infection.

A man came from a lumber camp, where several cases of diphtheria had occurred, and took up his quarters at a certain house, where he remained for a week. Very soon after his departure, diphtheria broke out in the family of five children, one of whom died. The board of health traced out the man, whose presence in the first family had been followed by the outbreak, and learned that diphtheria had occurred in the second family to which he went, and that two of the children had died of this disease. After this man's wardrobe had been taken in charge and disinfected by the local board of health, no more outbreaks of diphtheria followed his movements.

Scotch Oats Essence.

The State Board of Health of Massachusetts and *The Druggists' Circular* have been exposing the fraud advertised and sold as a cure for the morphine habit, under the name of Scotch Oats Essence. Chemical analysis shows that, while the unfortunate morphine eater is hoping to free himself from his thraldom, he is unconsciously binding his chains more tightly by using this mixture, which contains about one half a grain of morphine in each ounce, and from 30 to 45 per cent. of alcohol.

Every few years a similar exposure is made; but still there is a sufficient number of people who will not be warned of the danger of trusting their health and lives to the irresponsible makers of these alleged cures for the opium habit, to furnish a lucrative field for the operations of such knaves. A dozen years ago, the Cumberland

County Medical Society exposed the practices of two of these wicked quacks who had their headquarters in Indiana. These fellows were accustomed to ascertain from each victim how much morphine he consumed a day and then supplied him with a bottle of the "cure" which contained in each day's dose a little more of the fatal drug than he had been taking in the same time. Of course, his craving was thus appeased, and a feeling of comfort was induced which easily pursuaded him that his habit was being conquered, when, in reality, it was becoming more deeply rooted. A more villanous piece of iniquity can hardly be imagined, and the man who perpetrates it is worthy of the deepest execrations of the community. The newspapers of the land will do humanity a service by giving wide publicity to these facts.

Some Topics at the Conference.

At the meeting of the National Conference of State Boards of Health, lately held at Cincinnati, Dr. Bryce, Secretary of the Provincial Board of Health of Ontario, urged the erection of isolation hospitals for infectious diseases (for scarlet fever and diphtheria, as well as for small-pox), as a more economical and effective method, than treating the patients at their homes. He mentioned the fact that, out of fifteen hundred sanitary districts in England, three hundred of them had such isolation hospitals. He favored hospitals on the pavilion or cottage style. When a child goes to such a hospital, its mother or some friend goes, also, to take care of it.

Dr. Baker, of Michigan, thought well of the idea. "Diphtheria and scarlet fever are more important than small-pox. In our State, we are aiming at removal of cases of diphtheria. In our State, the Agricultural College stopped because of an outbreak of scarlet fever. The servant girls had it."

In the discussion on quarantine, Dr. Baker said that diphtheria and scarlet fever, diseases which occur every year, should be treated as cholera and yellow fever are. The northern half of this country suffers more from these, than from either small-pox or cholera. They cause in Michigan a thousand deaths a year. They are dangerous, communicable diseases, and efforts should be made to exclude them. They are to a great extent imported.

Dr. Hewitt, of Minnesota, disagreed. "These diseases are always with us," he said. "The question is, how to treat the infection after the disease is past. The question is often sent to our office, what shall we do to prevent any further outbreak of these diseases? In our

state, the state board has the power of local boards. We have had instances of the tenacious character of the diphtheria infection. We have had cases where houses were thoroughly cleaned, that families returned to, to lose their last child. I think the main thing is to secure the thorough destruction of the infected surroundings. Either remove the sick child, or at least separate the healthy children."

"The disease has frequently been concentrated in a single family. Our rules are, isolate the infected child, with a nurse if possible; keep the healthy children of the same family from the public schools. After the death, destroy all the clothes, thoroughly disinfect the room, and do not let it again be occupied by a child. In scarlatina there is difficulty in getting at the mild cases in the schools, which are liable to communicate the poison."

Dr. Lee, of Pennsylvania said, "One of the most important factors in diphtheria is the length of time which the poison clings to the clothing. There was a time when diphtheria and scarlatina were not known in this country. They were introduced from abroad."

Dr. Hewitt said, that he would rather have small-pox in his home than diphtheria. "We all know," he continued, "that these diseases are as virulent and communicable as small-pox. I am in favor of quarantine against these diseases, if it is practicable."

Dr. Rauch, of Illinois said, "In the last two months, we have lost two medical men by diphtheria."

Dr. McCormack, of Kentucky said, "This is the most important matter before the Conference. More people have died in Kentucky in any one year from these diseases, than have ever died from yellow fever or cholera."

Dr. Baker said, "The resolution aims at something new. Nowhere in the United States are the diseases quarantined against. These two diseases kill more people than any others."

House Plumbing and Drainage.—II.

By E. C. Jordan, C. E., Member State Board of Health.

Plumbing Fixtures.

The water-closet, the set wash bowl, bath-tubs and kitchen sinks, with their traps, constitute the principal fixtures in house plumbing, and their variety is very great. I have referred to only two of the various water-closets and in both those cases to warn you against them, and of others I shall say but little. Only a few of them all serve their purpose well, and among those I shall first mention the most economical, and secondly the most expensive fixtures. Figure

13 is a diagram intended to represent a class of flushing rim short hoppers set as they should be with as little boxing about them as possible. Incidentally it represents Tucker's cast iron, porcelain-lined hopper, as manufactured by J. L. Mott, N. Y.

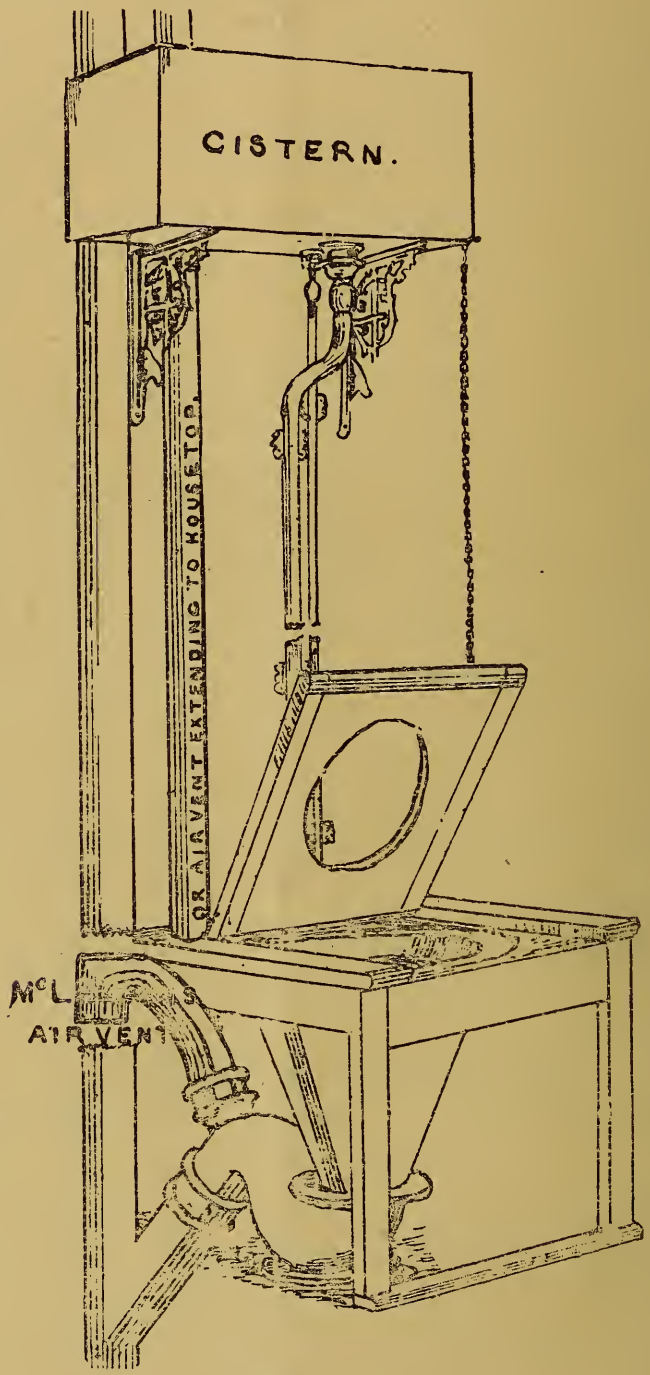

Fig. 13.

This general form of hopper has several manufacturers and can also be obtained completely made of earthen ware. The flow of water

should be such that it will drive before it all the soil and paper left in the hopper, and this cannot be done by the small stream from the direct service pipe, but is only properly accomplished by water from a special tank set directly over the hopper and six or eight feet above it, from which the water should flow through a large-sized ($1\frac{1}{2}$ or $1\frac{1}{4}$) pipe direct to the rim of the hopper. Aim to have the pipe with as little curvature in it as possible between tank and hopper, and insist upon the large size mentioned (when cistern is at the lesser height) and a large outlet valve in the tank. Such an arrangement is really the most economical in its use of water, from the fact that just the quantity necessary for water carriage is contributed in a manner to perform the labor of forcibly excavating the soil out of the hopper, while fifty times the amount contributed less abruptly may still fail to remove the soil from sight.

The hopper whose flushing rim is not formed so as to direct the water into the trap without spattering outside the bowl is badly formed. When I speak of the soil being removed from sight, I refer to its being carried beyond the trap and committed to the sewer.

There are certain water-closets of the short hopper variety, called washout closets, much used at the present time, because the method of flushing gives, to the sight at least, a cleanliness that is very acceptable. It is shown in section in Figure 14, and it belongs to a class the principal objection to which is, in my mind, this: that the concealed position of the trap prevents one from seeing at a glance, as in the case of the short hopper above referred to, whether the water seal against sewer gas is perfect or not, and whether or not the flush has carried the soil into the sewer or has left it in the concealed trap, from which place as decomposition sets in, gases are given off. The failure to remove the soil in Figure 13 would be evident, and thus a motive for a second pull at the flushing chain is given.

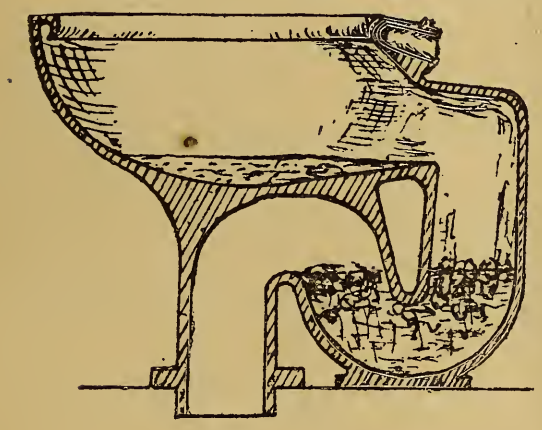

Fig. 14.

There is one objection that, to a certain extent, holds against *all* closets of the above forms, namely, the shallow depth of the water seal that is necessary in order to make the flush effective. The rush

of water through the soil pipe from other closets adjacent or overhead creates a partial vacuum in the pipe, and tends to draw the water out of a shallow seal trap. I have in my bath room a water-closet that formerly when used, not infrequently destroyed the seal of an adjacent closet, wash-stand and bath-tub. This difficulty is met by venting the traps against syphonage, and may be accomplished in various ways. By reference to Figure 10 and to Figure 13 you will observe a 3″ pipe extending from the crown of the trap of the lower closet to a point above the upper closet, where it enters the soil pipe, it is also *one* of the methods shown in Figure 13. Its office is to prevent syphonage of the lower trap when the upper closet sends a volley of

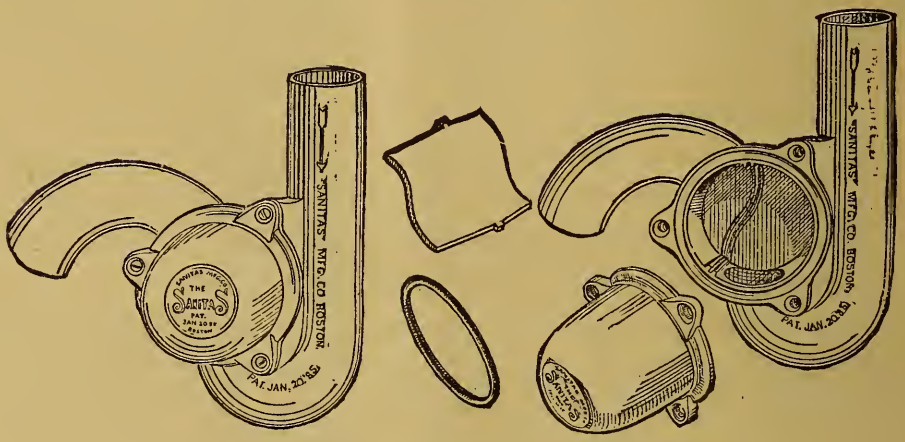

FIG. 15. "SANITAS" TRAP.

water past it, but it may be left to safely perform that office only when of large size and very direct and short. I have convinced myself by experiments of the insufficiency of back-venting traps through long lines of pipe and, after testing them under many actual and supposable conditions. I now, for the most part, place my trust in the non-syphoning trap called the *Sanitas*, shown in Fig. 15, and in the common S traps with the McLellan air inlet applied to it, shown in detail in Figures 16, 17 and 18.

The Sanitas trap is practically an S trap with cup-like reservoir on one side, in which is a thin partial division wall with a curved surface. In resisting syphonage the water is arrested by being thrown up against the wall, and thence is reflected back to restore the seal after the air desired to fill the vacuum has passed on. It is practically non-syphoning and self-cleansing. The common S trap with McLellan air inlet on it is simply a method of stopping the syphonic action by supplying air to the vacuum under the edges of an inverted cup which normally rests in quick-silver, and which cup lifts or re-

sponds to the vacuum drag quicker than the water in the trap, simply because it is lighter. The moment the cup has lifted and performed the office of letting enough fresh air in to destroy the vacuum pull, it falls back upon the quick-silver and prevents the sewer air from passing out. This air inlet is close by the trap which is to be protected, and it responds at once, while the friction upon a long line of vent-pipe extending from the trap to the top of the house, is an element in many cases not so easily overcome as the weight of the water in the trap; hence we frequently find traps robbed of their seal notwithstanding a vent-pipe of the same size as the trap extends from them to the top of the house.

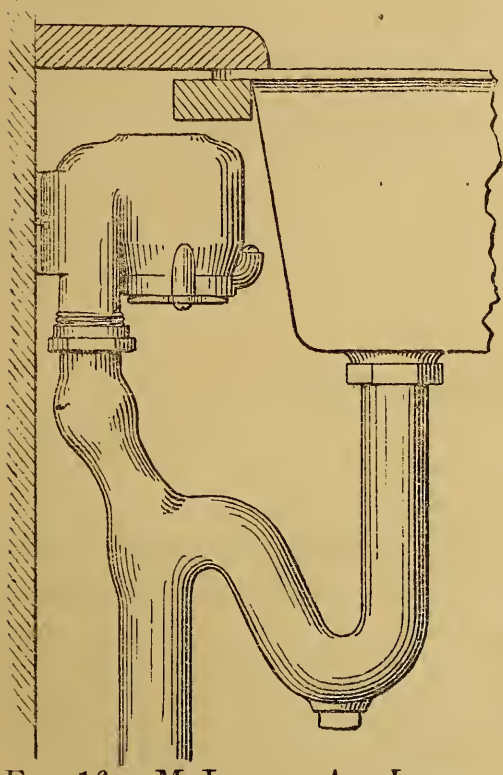

FIG. 16. McLELLAN AIR-INLET.

Fig. 16 shows the air inlet or vent applied. Fig. 17 is a sectional view showing the inverted cup at rest in quick-silver. Fig 18 shows the cup lifting and allowing air to pass under it in response to the draft or partial vacuum caused by the falling water below or adjacent. I placed an air inlet upon the S trap of my washstand, which, though 10 feet from my water-closet had formerly lost its seal at nearly every discharge of the closet, and I was pleased to observe

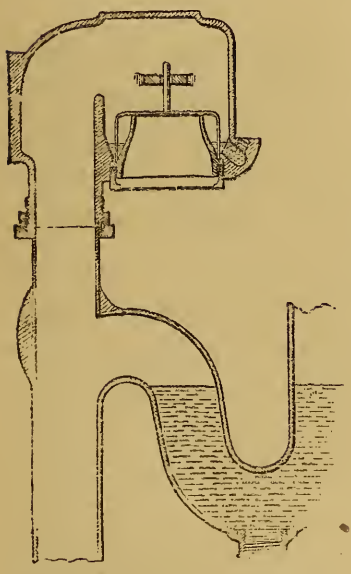

FIG. 17. VENT AT REST.

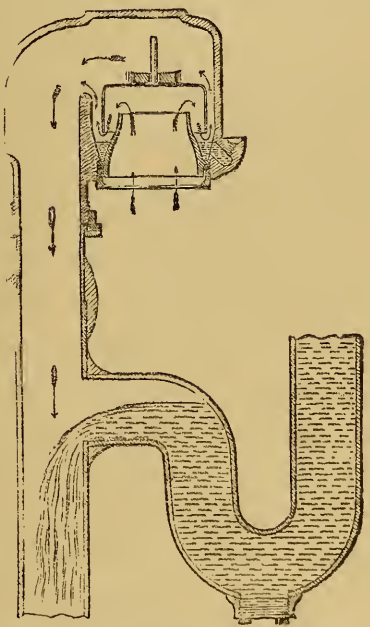

FIG. 18. VENT ADMITTING AIR.

that in addition to preventing syphonage, it had another office of no inconsiderable value: namely. as a ventilator of the outfall pipe. By that office it extends the limit of distance from the main line of extended soil pipe, at which we can safely place a fixture; because the air that otherwise would be dead and objectionable in the unventilated branch from the main line, is largely replaced with fresh air every time a fixture is used. A larger size than that given in the cut is used upon the traps of water-closets, and one method of applying it may be seen in figure 13 where it is shown as taking the place of the long air pipe vent formerly in use.

Cholera and Sanitary Work.

The fact should not be forgotten that, with the approach of warm weather, we shall again be threatened with danger from the old, European cholera fields. We all remember how, in rapid succession, dangers came in the infectious persons and baggage of Neapolitan steerage passengers last autumn; and the present and prospective influx of immigrants from the same perilous sources is not reassuring.

Boards of health in every part of our country should watch, but not wait. Whether or not those startling headlines, announcing the re-invasion of our shores with the foreign pestilence, are again to appear in our daily press, there is work which every community needs to have done by its local board, and every citizen should help on the work with his moral and material support.

Less risky and less objectionable methods of disposing of excreta and kitchen waste should be secured; the water supply should come from sources where the danger of pollution is reduced to a minimum; the garbage and manure heaps should not be permitted to remain where they will be an offense to the eye and the nostrils. Work in these and other directions, which will suggest themselves to every local board, will pay, whether cholera comes now or never, in lengthening the average length of life of the inhabitants; diminishing the loss of time caused by sickness and the expenditures made on account of it; in augmenting the effectiveness of the day's labor, whether done with the hands or with the brain; in increasing the evidences of thrift, and diminishing the indecencies of civilization; in helping to make our State appreciated, as it deserves to be, by ourselves and by the increasing thousands, who annually come here in that season of the year, when the greatest need of sanitary work is felt, and the worst results of its neglect are made manifest; and finally, just this kind of work will be our surest protection when the cholera comes, if ever it does.

THE

SANITARY INSPECTOR.

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Sanitary Notes.

The Third Annual Report of the State Board of Health is now in the hands of the binders and will be ready to be sent out in a few days.

In August an International Congress will meet in Zurich, Switzerland, for the consideration and discussion of the questions relating to the sanitary care of children.

In the town of Redding, Cal., during the recent outbreak of smallpox, of the two cases which occurred, one was contracted through the medium of a dog which carried the infection in his hair to the child who lived a quarter of a mile from the place where the first patient was quarantined.

The public school system is, by all odds, the largest and most potent single instrumentality in the United States. It illumines more minds, irradiates more homes with the sunshine of intelligence, it prolongs more lives and fills more untimely graves, than any other power in the land. It is the purpose of progress to retain that which is good and to eliminate that which is bad.—*Dr. Chas. A. L. Reed, in Sanitarian.*

A case of scarlet fever came under my observation some years ago in an old house which was soon after deserted by the family and not re-occupied as a dwelling place. The door and windows were taken out and carried away and the old shell stood for two years with the weather blowing through it. The old house was then sold to a friend of mine and he with his son tore it down and hauled it home. Six days after they were engaged in this work, the son took scarlet fever and it was a bad case. This case was in the open country and the boy had been nowhere to be exposed to the disease and there was not a case within thirty miles that we could learn of, and I took great pains to enquire.—*Report of Local Board of Health, Brewer.*

The circumstances connected with the origin of our two cases of diphtheria are somewhat singular; both cases seemed to have their starting point in a certain school-room. In this school-room two years ago or more a boy was taken down with diphtheria. The seat which the boy occupied was not used again until last spring, when it was taken by a little boy who soon came down with diphtheria. That was our first case. The seat was cleansed and remained idle until this winter term, when a boy occupied it again and soon he was taken down with diphtheria. This was the second of the two cases which I report. It would seem as though that seat had been infected by the first case and was the origin of our two cases of this year.—*Report of Local Board of Health, New Gloucester.*

Faith Cure and Small-Pox.

The popular faith-cure mode of healing, which is being peddled about the country at the present time, does not seem to prosper well in Kansas. At Salina, recently, one of these mountebanks undertook to cure a case of small-pox by the laying on of hands. As the result, the health officer considered it his duty to interfere, and both the patient and the "healer" are now quarantined in a deserted blacksmith shop in the suburbs.—*Sanitary News.*

Milk Control in Stockholm.

In Stockholm the sale of milk can be made only at certain specified public places, and he who wishes to sell milk must register with the bureau of public health and receive a permit to do so. The shop where the milk is sold must be light, well aired and neat. The vessels for the reception and transportation of the milk must be clean. When an infectious disease occurs in the dwelling of a milkman, notice must be immediately given to the bureau and special care must be taken to prevent the spread of the disease by the infection of milk. —*Schweiz. Blät. f. Gesundheitspflege.*

A Case of Tuberculosis from Milk.

The last number of *Revue D'Hygiene* reports the following case of an infant infected by the milk of a tuberculous cow. This child at the age of four months, of a family absolutely free from phthisis, died of tuberculosis of the mesenteric glands. This fact was confirmed at the autopsy. The glands alone contained the bacilli of tu-

berculosis which were found in no other part, not even in the intestinal mucous membrane. The child was fed with the milk of a particular cow. The cow was sacrificed for a post mortem examination. The left lung and plura of the animal were tuberculous and contained the bacilli of tuberculosis. The bacteriological examination of the milk gave at first negative results, but finally the presence of the bacilli in the milk was confirmed by squeezing the liquid from the deeper parts of the udder.

Characteristics of Diphtheric Infection.

"The poison of diphtheria being, as a rule, ærobic, it is inhaled and commits its ravages in the respiratory tract, the nostrils, fauces, larynx, trachea, and the bronchial tubes. Its relations, then, to sanitation are very close; whatever is a source of impurity in the air we breathe renders us liable to disease by depressing the vital forces and weakening the normal resisting power of the individual tissue cells. Diphtheria once established can be propagated by the close proximity to the patient, from the expectorated matters, the excreta, from the false membrane itself, and from the body dead from diphtheria. Water contaminated with the germ, infected milk, sewer air, domestic animals, ochlesis, all matter of dust or dirt are capable of carrying and developing the diphtheric germ. Hence, it follows that perfect cleanliness, with thorough disinfection of all suspected places or things, is our only safe reliance against diphtheria."—*Dr. Tyerell, Sec. Cal. State B'd of Health.*

Mutual Help.

In the National Conference of State boards of health an agreement was entered into by the representives of the various State sanitary organizations to notify each other promptly of any cases or outbreaks of the infectious diseases which might be a source of danger to other States. This agreement is very strictly fulfilled, so that when cases of small-pox, cholera, typhus or yellow fever, occur in any of our sister States, this office is notified immediately by letter or telegram, and the same system of inter-state notification is to be applied to diphtheria, scarlet fever and other diseases when the interest of neighboring States requires it.

We submit to the local boards of health whether it would not be a good plan to carry out a similar system of inter-town notification. It frequently occurs that the different local boards might be of help to

one another in this way. For instance, the local board in the town of A. learns of cases of infectious diseases in the town of B. of which the local board of health of that town are probably unaware, or cases occur in the town of A. which from circumstances of contiguity or otherwise specially imperil B., or an infectious person has departed from the town of A. to the town of B. Under these and various other circumstances it would be a graceful act and sometimes a very beneficial one for the board in the town of A to notify the one in B. In this work of preventing the infectious diseases we are almost powerless alone; neighbor must work with neighbor, town with town and State with State.

Researches on Tuberculosis.

Dr. Cornet publishes, in one of the German medical journals, an account of a series of investigations on tuberculosis which he has been carrying on for the last two years in the Berlin Hygienic Institute. One of the groups of experiments which he conducted dealt with the air and dust in dwelling houses, hospitals, etc. In order to examine the walls and floors of rooms, portions of their surfaces were washed over with sterilized sponges which were then used to inoculate broth, the resulting culture being injected into the abdominal walls of guinea pigs. The animals (if they did not die of any inter-current affection were killed forty days later, and a careful necropsy made. Twenty-one hospital wards, in which most of the patients were phthisical, were examined in this way, the result being that from the dust of fifteen of them tuberculosis was set up. Similar observations made in lunatic asylums showed that the walls of these establishments are very frequently infected with the tubercle. Private houses, where persons affected with phthisis had lived, gave likewise very distinct positive results; out-patient departments and surgical wards appeared, on the other hand, to harbor no tubercle. One important observation made was that where the consumptive people had been in the habit of expectorating on the floor, this was certain to yield infectious cultures, whereas in cases where handkerchief or spittoons had always been used the liability of the dust to prove infectious was very greatly dimished.—*Lancet.*

Points in House Sanitation.—I.

With the advent of the warm season many sanitary queries present themselves to the mind of the intelligent householder; or at least many minor nuisances are presented to his senses which ought to suggest

questions about the best methods of keeping the dwelling and the premises in a healthful conditon. Certain agencies, mostly of bad omen which to some extent have been held in obeyance by the winter's cold, are again let loose, and to guard against them a little intelligent care is needed in the domestic management. This "intelligent care," of course, must, to some extent, be subservient to the financial condition of the householder; but whether rich or poor we have it in our power to greatly modify the conditions for healthfulness or otherwise of our home. If we cannot afford to put into our house costly plumbing fixtures, which almost automatically rid us of the most dangerous household wastes, we can adopt a few simple habits of disposal which if methodically carried out will deliver us from many perils and discomforts.

In the management of kitchen wastes we have both solids and liquids, or garbish and slop, with which to deal. We do not have to go to the poorest families of our villages to find abundant examples of how we ought not to take care of these matters. For the sink and laundry-water a short piece of lead pipe runs from the sink, pierces the house wall, and discharges the sewage which it carries upon the ground close to the foundation; or the line of filthy saturation is extended for a little distance from the house by a leaky drain; or a tight pipe carries the drainage to some distance and discharges it into a covered cess-pool. This dirty water is *sewage*, and as dangerous a kind of sewage as any other. The decomposition of the soap, grease, and other organic matter which it contains gives rise to "sewer gas" as dangerous as that which rises through the man-hole covers of ill-kept sewers. These poisonous gases from the little slop-pool under the sink spout find their way into the house in several ways. In the season of the year when they are generated the most abundantly, the open window offers free entrance. Though the liquids flow downward, the air currant when there is no trap under the sink more frequently passes in an upward direction through the sink spout. Thus we have an air inlet for the kitchen, which though not large, makes up for its inferior size by sucking up and delivering air of the most execrable character into the faces of the workers at the sink. If on the other hand we run a tight pipe from the sink to a covered cess pool, we only intensify the danger from this path. Decomposition goes on within this subteranean cask or more pretentious cess-pool, and the easiest outlet for the gaseous products is through the drain directly into the kitchen. Or we venti-

late the cess-pool with a wooden or other duct leading above the ground, and we perhaps have got what the plumbers are after when they put a fresh air inlet in their house drainage system and extend the soil pipe through the roof. There is this critical difference, however, in the ventilation of our house drainage system; the upper end of it discharges within the house instead of into the free air above the roof.

This hereditary system threatens us the year in and the year out. If its plan is so primitive that freezing renders it useless in cold weather, we are still doomed to pay the penalties of our warm weather sins. Decomposition below the surface of the ground still goes on in the winter though more slowly than in the summer, and the filth-saturated soil in the vicinity of houses drained as we have indicated delivers its quota of the gases of decay somewhere. In winter when we have our houses artificially heated, the warm air in them rises, and a continual transpiration goes on through walls and roof and flues. Colder air flows in from lower to upper rooms, from cellar, from the ground, or in common parlance our houses act as a suction apparatus and sucks into itself cellar air, and this sewage polluted ground air. A healthful house must have beneath it a clean cellar if any, and the soil beneath and around it must be free from pollution.

Unnecessary Cases of Typhoid Fever.

The following extract from some of the reports of our local boards of health show how some of the cases of typhoid fever in the country originate which a reasonable regard for life and health would obviate: "A large percentage of our farmers, even of the better class, have their wells less than one hundred feet from their barn-yard and often within ten or fifteen feet of it." "Both cases of typhoid fever seemed to have been caused by polluted water, due in each case to the drainage from the sink being allowed to discharge on the surface of the ground near the well, with a filthy privy in each case near the well." "A case came under my observation where a well was located on a slope a few feet below the stable and privy, causing the water to have a bad taste." "One case of typhoid fever resulted from drinking from a brook which ran a few feet back of the house in which typhoid fever was prevailing."

"I think that the first four cases of fever were caused by water pollution. The barn-yard was near the well and on higher ground, and when, as the executive officer of the board, I was called to visit

this family, there was found a pool of stagnant water in the corner of the yard and I afterwards learned that the discharges of those who were taken sick first were thrown into the yard."

Sanitary Results in Massachusetts.

In his address on State Medicine before the American Public Health Association, Dr. Walcott of Massachusetts stated that since the establishment of a State board of health in that commonwealth in 1869, the percentage of deaths from the infectious diseases has almost steadily decreased from 25.6 to 19.0; there has also been a general tendency, though less marked, in the direction of a decrease of deaths from constitutional diseases. The classification of preventable diseases is as yet not well defined, and year by year, as the experience of sanitarians becomes widened, a larger and larger number of affections are found to be the result of influences that can be removed. This fact is illustrated in the case of consumption, the prevalence of which was shown, twenty-five years ago, by a former president of this association, Dr. G. H. Bowditch, to be largely influenced by conditions of soil, moisture, and land-drainage. The most marked reduction has occurred in the case of small-pox, which is a disease that is absolutely preventable by means of vaccination and re-vaccination.

In demonstration of the saving of life in consequence of better sanitary conditions, the speaker offered a comparison between the results of ovariotomy and those following the labors of an intelligent and efficient board of health. The largest number of deaths in Massachusetts in any one year from ovarian dropsy was 51. In the single city of Somerville, the death-rate has been reduced, since the organization of a municipal board of health from 22.86 to 16.68 per 1,000. Thus, the adoption of sanitary measures has saved more lives in one year, in a community of thirty thousand people, than could have been restored to health in the same period in a State of nearly two millions of inhabitants, by an operation which is justly regarded as one of the greatest triumphs of American surgery.

Precautions Against Tuberculous Infection.

To guard against the possibility of infection from consumptive patients a committee of the Provincial Board of Health of Ontario has made the following recommendations: 1st, that the sputa of consumptive patients, wherever it is possible to have it so, be received into

suitable vessels containing a disinfectant and as soon as possible disposed of by fire; 2nd, that the freest possible ventilation of rooms occupied by consumptive patients be always, and in every case, secured, and in order to accomplish this result that (*a*) a minimum space of 1,000 cubic feet should be allowed to each occupant of a bedroom, (*b*) superfluous curtains, carpets, furniture, etc., should be forbidden, (*c*) wall paper on bedrooms should also be forbidden; 3rd, that as consumption is the principal cause of death in this province, and the germs of the disease must, therefore, be widespread, thorough ventilation of public buildings, especially school-rooms and dwellings, is strongly recommended; 4th, that sanitation and health resorts in which consumptive patients are brought into close proximity with patients affected with other diseases, more particularly diseases of the air passages, are to be avoided; 5th, that in hospitals tuberculous patients ought to be separated from those affected with other diseases; 6th, that a private family occupancy of the same bed or even of the same room with a consumptive patient, if consistent with the duties of humanity, be forbidden.

Cow Scarlet-Fever.

In the first number of *The Sanitary Inspector* we referred to the outbreak of scarlet fever in England which was pretty conclusively shown to have been disseminated from a dairy farm at Hendon, but which was not due, as has quite frequently happened in similar outbreaks, to infection of the milk from cases of scarlet fever in the human subject. The investigations conducted under the direction of the Local Government Board by Mr. Power and Dr. Klein showed that it was very probable that the disease was caused by an eruptive disease which had prevailed on the teats and udders of the cows at the Hendon farm. Lately a scarlatinal outbreak has occurred at Garnethill, Scotland, and Dr. Russell, Health Officer of Glasgow, has investigated it. He, as was done in the Hendon outbreak, was able to prove that the milk of a particular dairy was to blame for the causation of at least a large proportion of the cases of scarlet fever, and he was also able to exclude the possibility that the milk had become infected by human beings. In the dairy which was implicated, cows were found with an eruptive disease resembling, if not identical, with that of the Hendon cows. A calf was fed on the milk of these animals, and was almost at once seized with a highly febrile illness which nearly killed it, but from which it is recovering with loss of hair and desquamation. Investigations are still in progress, the results of which will be of interest.

House Plumbing and Drainage.—III.

By E. C. Jordan, C. E , Member State Board of Health.

The shallow seal of the prevailing types of short hoppers can, as I have implied, be protected quite thoroughly by proper venting against syphonage; yet the method is not at all times so sure as to warrant one in placing the trap where its failure cannot be noted by the most ordinary observation, and this is not the case in the general type of washout closets. Loss of seal by evaporation in a house closed for a few weeks even is not unusual, and I have, during the past few years, remarked several failures in the upper closet of a house from wind pressure both up and down the soil pipe during the prevalence of strong gales. The fresh-air inlet is of but little value as a protection against this action when there are changes of direction in the soil pipe near the upper closets. The water is swayed or *rocked* out, if one may use the term, by a varying unequal pressure.

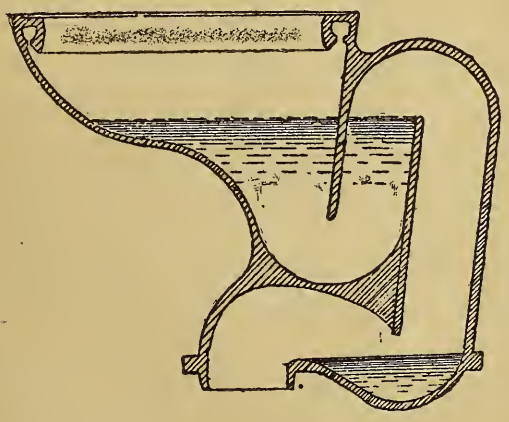
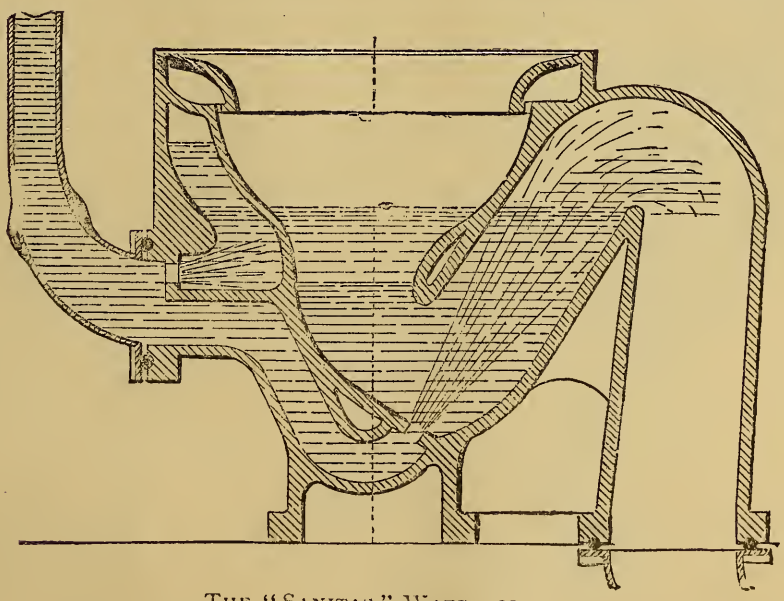


Fig. 19. The Dececo.

Water closets that can successfully meet such conditions are of the expensive variety, though no more so than some others much in use that do not accomplish these same good results. Such closets belong to the *deep seal* class, and of course demand special means of emptying the bowl and trap. In this class are the Dececo, the Sanitas, and



The "Sanitas" Water-closet.

Fig. 20.

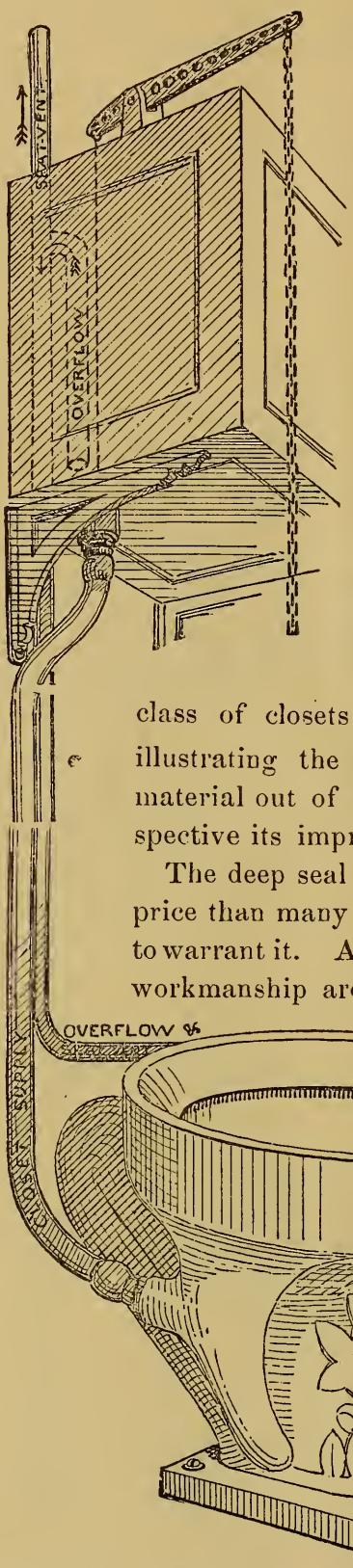


Fig. 21. The "Sanitas" Water-Closet.

Smith's Siphon Jet closets.

The former empties the bowl by syphonic action started by the flushing supply, and the two latter by a part of the supply being used in a jet of water at the bottom of the bowl to force or drive the contents beyond the trap. A transverse section of the improved Dececo is shown in Fig. 19.

The lower reservoir is not a trap but is simply a weir chamber used in establishing syphonic action with the large reservoir of water above it. The water used to start syphonic action is the flush contributed from a tank especially adapted to this class of closets. Fig. 20 is a transverse section illustrating the action of the Sanitas, in forcing material out of the bowl, and Fig. 21 shows in perspective its improved form.

The deep seal closets as a rule are held at a higher price than many others, but their great security seems to warrant it. Also I find that better workmen and workmanship are required in setting them, but the standard is none too high. The deep seals accomplished by the Valve and Plunger closets, I have not mentioned, because they are fast disappearing from the market. They are expensive, complicated (hence often out of order) and unreliable.

Set Wash Stands, Bath Tubs and Sinks.

The marked improvements in these fixtures, to which I would call your attention is in the *outlet*. The form almost entirely in use with us in the State of Maine, consists of a plug and chain for the bottom outlet, and an overflow outlet through perforations near the top edge of the fixture into a conduit that connects with the waste pipe below. The result is that the interstices of the link chain, and the walls of the overflow conduit, the former being difficult and the latter impossible to cleanse or flush properly, is stocked and coated with a film of filth. The wall of the overflow passage soon becomes coated with the decaying soap slime, and throws off noxious gases into the room through the overflow holes, and is no small factor of unhealthfulness. These difficulties have been remedied by what is known as a standing overflow.

The standing overflow pipe is easily applied to the ordinary bath tub, but in new patterns it is placed in a recess at the end of the tub where there is no danger of its being kicked down. Its application to a wash bowl has brought about a change in the form of the bowl, *i. e.*, we can now have a bowl with outlet on one side where it presents no obstruction. The overflow pipe is easily removed, and its smooth surface readily cleansed; and indeed it presents less surface to become fouled than the links alone in the chain commonly used, which as we have before said are very difficult to clean. Fig. 22 shows one of the

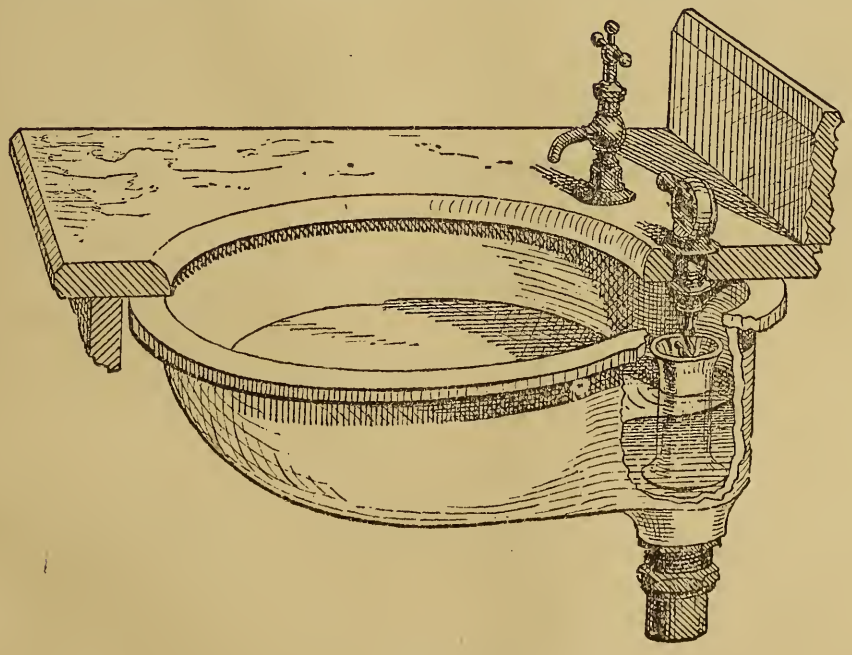


Fig. 22.

best forms of its application to a wash stand. Another improvement over the old is the increased size of outlet in such fixtures, whereby their whole contents are discharged in a few seconds, effecting a desired scouring of the trap and waste pipe below.

A peculiar phase of human nature is shown by the fact that many a householder seems to resent as a sort of personal grievance, having improvements in house sanitation pointed out to him. Many a man will eagerly seek and obtain the latest improvement in the machine with which he is manufacturing a certain article for the market, but a sewer-gas trap or water closet that can give him a better security against sickness is ignored—the old ones are good enough. Improvement, however, will not halt because of such folly.

A good plumbing law in every city is a valuable adjunct in protecting an ignorant public, but perhaps the most effective factor in bringing about reforms has been the promulgation of some of the general principles that should control in house plumbing and drainage. The landlord now finds that the house hunter's first inquiry is in regard to sewerage and drainage. His assertion that the *unseen* system is all right does not carry conviction to the inquiring mind. The wise landlord will place his plumbing so that each running foot of it can be seen, and it will become its own sponsor, or else he should be obliged to furnish a certificate of its good condition from the hand of an independent expert in such matters. The claim for damages brought about by concealed sanitary defects are being listened to and granted in our courts of law, and as I have contended in a former article, I consider it equally as proper as the claim against the railroad corporation that takes me as a passenger, and by negligence does me injury.

My attempt has been to show what experience dictates to-day as the safest and best methods in sanitary science. To one who may wish to see what great advances have been made, and to judge from the practice of the past, how near certain principles to-day properly applied can be claimed as fundamental, I would suggest reference to a book which can be obtained in most public libraries, entitled "A Pictorial Guide to Sanitary Defects," by T. P. Teale, and to errors in "Plumbing and House Drainage Problems," reprinted from the Sanitary Engineer, and for the contrast to them, see the best practice of to-day in the recent works of William Paul Gerhard, C. E.

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